



## Final Report

# BASELINE SURVEY ON MOSQUITO AND TICK BITE PREVENTION

Submitted to  
Department of Health Canada

Prepared by  
Leger

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Ce rapport est aussi disponible en français.

The word "Canada" in a serif font, with a small red maple leaf icon above the letter 'a'.

**Baseline Survey on Mosquito and Tick Bite Prevention**  
**Prepared for Health Canada and the Public Health Agency of Canada**

Supplier Name: Leger  
March 2026

This public opinion research report presents the results of a quantitative study conducted by Leger Marketing Inc. on behalf of Health Canada and the Public Health Agency of Canada. The research was conducted with Canadians aged 18 and older.

Cette publication est aussi disponible en français sous le titre : Enquête de référence sur la prévention des piqûres de moustiques et de tiques

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# 1. Executive Summary

Leger is pleased to present Health Canada and the Public Health Agency of Canada (PHAC) with this report on the findings from the survey on mosquito and tick bite prevention. This report outlines the results of the research.

This report was prepared by Leger who was contracted by Health Canada and PHAC (contract number CW2419669 awarded September 24, 2025).

## *1.1 Background and Objectives*

Canada is experiencing the impacts of climate change and will continue to experience generally warmer temperatures, milder winters, hotter summers, and more frequent severe weather events such as wildfires, floods and droughts.

Climate change is a major driver of growing public health risks. These changes are increasing the spread of climate-sensitive infectious diseases, particularly vector-borne diseases such as tick and mosquito-borne diseases.

As climate and environmental changes expand tick and mosquito habitats in Canada, PHAC uses a One Health approach to address rising vector-borne disease risks. One Health is a collaborative, multi-sectoral approach that recognizes the interconnectedness of human, animal, plant, and environmental health. This approach includes integrating human, environmental, and vector surveillance data, as well as working with national and international partners on training, monitoring, and public education. Together, these efforts improve early detection, risk communication, and public health responses to infectious diseases.

### **Mosquitoes**

Mosquito-borne diseases, such as West Nile virus and the risks posed by other emerging mosquito-borne diseases like Eastern equine encephalitis, present an ongoing public health concern in Canada. In most parts of the country, mosquitoes are common from May to September. Mosquitoes can bite at any time of day but are typically more active between dusk and dawn.

Mosquitoes and mosquito bites are a concern for travellers visiting destinations where exotic mosquito-borne diseases are endemic. Diseases such as Zika, malaria, and dengue (among others) can result in long-term health consequences, especially for people who are more at risk for severe illness.

In Canada, updates on West Nile virus cases are provided bi-weekly during mosquito season through the Mosquito-borne disease surveillance in Canada—seasonal update dashboard. In 2024, in collaboration with provinces and territories, PHAC updated the national case definition for West Nile virus. These actions reflect the Government of Canada's continued monitoring of vector-borne disease risk and its efforts to inform the public about high-risk areas and mosquito-borne health threats.

The best way to prevent mosquito-borne diseases is to prevent mosquito bites. For more information on mosquito prevention, visit [canada.ca/mosquitoes](https://canada.ca/mosquitoes).

## Ticks

Ticks can spread diseases such as Lyme disease, anaplasmosis, babesiosis, and Powassan virus disease. Ticks can be active whenever temperatures are consistently above freezing, and the ground is not covered with snow. Therefore, while tick-borne infections are most common in warmer months, they can occur year-round.

Lyme disease is transmitted through the bite of infected blacklegged ticks. Other tick species may also transmit different pathogens that can cause disease in humans. Between 2009 and 2024, provincial public health units reported 28,033 human cases of Lyme disease across Canada. Tick-borne disease case data are made available through PHAC's Tick-borne disease surveillance in Canada dashboard.

In 2024, in collaboration with provinces and territories, PHAC added three new vector-borne infectious diseases (anaplasmosis, babesiosis, and Powassan virus disease) to the list of nationally notifiable diseases. In 2025, the national case definition for Lyme disease was also updated. These updates demonstrate Canada's ongoing surveillance efforts and its commitment to monitoring the epidemiology of tick-borne diseases and using the resulting information to support public education on the risks posed by these diseases.

The best way to prevent tick-borne diseases is to avoid tick bites. For more information on ticks and tick prevention, visit [canada.ca/ticks](https://canada.ca/ticks).

## Public Opinion Research Context

PHAC conducted a public opinion research (POR) survey on Lyme disease in August 2021 to measure knowledge and awareness levels among Canadians living in high-risk areas. Findings from that survey helped shape the 2022–2025 marketing strategy.

This 2025 POR initiative sought to measure awareness, knowledge, perceptions, and behaviours related to mosquitoes and mosquito-borne diseases. In addition, follow-up questions from the 2021 POR were included to assess whether there had been any shifts in public knowledge and behaviours related to Lyme disease.

The 2025 research will help identify key knowledge gaps, regional variations, and demographic trends that influenced risk perception and protective behaviours. The results will support PHAC in tailoring its communication strategies and public health interventions, particularly to encourage the adoption of protective behaviours such as using insect repellent, wearing protective clothing, and removing mosquito breeding areas around homes and vacation properties.

Ultimately, this research will strengthen PHAC's ability to protect the health of people in Canada by aligning public health messaging with current levels of public understanding and behaviour. Insights gained through this study will inform the development of seasonal awareness campaigns and will support broader preparedness and response planning for vector-borne diseases. The findings will inform and validate PHAC's multi-year Vector-Borne Disease Prevention Marketing Strategy targeting the general

public, especially those living in or travelling to higher-risk areas, to enhance awareness and education about ticks and mosquitoes.

### **Overview of the methodology**

An 11-minute online survey was conducted among 5,006 Canadians aged 18 and older. In addition to a nationally representative sample, targeted audiences were included to ensure robust analysis of higher-risk groups: residents of areas at higher risk of mosquito-borne and tick-borne diseases (focusing on regions closest to the Canada–U.S. border), parents of children aged 0-14, individuals who spend time outdoors, people with occupational exposure, those who travelled to another region within Canada or outside Canada, residents of rural areas, and people with pets (particularly dogs and cats). Fieldwork was conducted from November 10<sup>th</sup> to December 12<sup>th</sup>, 2025, and results were weighted by age, gender and region, language most spoken at home, and education level based on the most recent data from Statistics Canada’s 2021 national census to reflect the Canadian adult population.

## ***1.2 Overview of Quantitative Findings***

### **2.1 General knowledge and awareness**

- Nearly all Canadians surveyed believe that mosquitoes can transmit diseases (96%).
- Most respondents believe mosquitoes can carry diseases in other countries (97%), the United States (88%), and Canada (86%).
- Familiarity (very or somewhat familiar) with mosquito-borne diseases includes malaria (53%) and West Nile virus (47%), followed by yellow fever (29%), dengue (25%), and Zika (25%), followed by chikungunya (8%), Eastern equine encephalitis (7%), Japanese encephalitis (7%), California serogroup viruses (3%), and Oropouche virus (3%).
- Familiarity (very or somewhat familiar) with tick-borne diseases includes Lyme disease (62%), Rocky Mountain spotted fever (10%), anaplasmosis (5%), babesiosis (4%), and Powassan virus disease (4%).
- Familiarity (very or somewhat familiar) with other infectious diseases was also measured to provide a benchmark against more common conditions, including COVID-19 (91%), avian influenza (53%), and norovirus (37%).

### **2.2 Perception of risk**

- Among respondents who indicated being familiar (very, somewhat or not very) with mosquito-borne diseases, concern is reported for Oropouche virus (51%), California serogroup viruses (50%), chikungunya (49%), West Nile virus (47%), eastern equine encephalitis (43%), Japanese encephalitis (42%), Zika (40%), malaria (36%), dengue (36%), and yellow fever (34%).
- Among respondents who indicated being familiar (very, somewhat or not very) with tick-borne diseases, concern is reported for Lyme disease (71%), Powassan virus disease (51%), babesiosis (50%), anaplasmosis (48%), and Rocky Mountain spotted fever (43%).

- Among respondents who indicated being familiar (very, somewhat or not very) with other infectious diseases, concern is reported for COVID-19 (60%), norovirus (54%), and avian influenza (51%).
- Among respondents who indicated being familiar (very, somewhat or not very) with mosquito-borne diseases, sources where they first heard about them include local news (44%), social media (33%), friends or family (33%), internet searches (26%), federal government sources (18%), and travel health clinics (18%).
- Less than one quarter of respondents report that mosquito-borne diseases have been reported in their local area (23%), while 47% report they have not and 29% say they do not know.

### 2.3 Preventive measures: Knowledge and behaviours

- Just over one in ten respondents report that they or someone they know has been diagnosed with a mosquito-borne disease (11%), while 88% report no such diagnosis and 1% preferred not to answer.
- Among respondents who report a mosquito-borne disease diagnosis, malaria is reported most often (30%), followed by dengue (26%) and West Nile virus (24%), with smaller proportions reporting chikungunya (9%), yellow fever (8%), Zika (7%), California serogroup viruses (4%), Japanese encephalitis (3%), Eastern equine encephalitis (3%), and Oropouche virus (3%). One quarter said they do not know which disease it was (23%).
- Among respondents who reported that either they or someone they know had been diagnosed with a mosquito-borne disease, nearly one third (29%) said the diagnosis was made following a doctor visit due to feeling sick or experiencing symptoms, while others report identification after symptoms began (19%), through a blood test or testing (13%), through friends or family (9%), or following a hospital visit (9%); smaller proportions cite identifying the country of infection (3%) or another method (3%), while 23% do not know or preferred not to answer.
- Just under two out of five respondents report that they or someone they know has been bitten by a tick (38%), while 61% report no such exposure and 1% preferred not to answer.
- Nearly two thirds of respondents identify using tweezers as the best way to remove a tick (65%), while smaller proportions identify twisting it off (10%), using a tick removal tool (3%), flicking it off (2%), squishing it (2%), using heat (2%), or another method (2%), and 15% say they do not know.
- After removing a tick, most respondents say they would take at least one follow-up action (92%), including monitoring symptoms such as signs of a rash (63%), consulting a health care professional (58%), keeping the tick to bring to a health professional (52%), searching for information online (30%), submitting a photo to eTick (22%), or disposing of the tick immediately (22%).
- Among respondents who own cats or dogs, over one quarter report having found a tick on their pet (28%), while 70% report they have not and 2% do not know or preferred not to answer.
- Among respondents who have found a tick on their pet, nearly half report throwing it away (49%), while others report bringing it to a veterinarian (26%), taking a picture to send to eTick (9%), removing it (5%), killing it (3%), keeping it in a container (2%), burning it (2%), contacting a

veterinarian (1%) or attempting to identify the tick (1%), with 1% saying they do not know or preferred not to answer.

- Just over half of respondents say they would consider getting a human vaccine for Lyme disease if it were available in Canada (53%), while 15% say they would not and near answer (32%).
- Most respondents report taking at least one precaution to protect themselves and their family from mosquitoes (88%), with the most common behaviours, including using insect repellent (72%), wearing pants (54%), wearing long-sleeved shirts (53%), wearing a hat (32%), wearing light-coloured clothing (28%), pulling socks over pants (28%), wearing insect-repellent clothing (27%), and using netting (21%), while 10% report taking no precautions.
- Most respondents also report taking at least one precaution to protect themselves and their family from ticks (83%), including checking the body for ticks (54%), wearing pants (53%), walking on cleared paths or trails (51%), wearing long-sleeved shirts (44%), using insect repellent (43%), pulling socks over pants (37%), showering after coming back from outside (28%), wearing a hat (25%), wearing insect-repellent clothing (20%), and wearing light-coloured clothing (18%), while 15% report taking no precautions.
- Among respondents who use insect repellent, more than three quarters report using products that can be applied directly to the body (chemical free/natural such as essential oils + DEET + Icaridin) (76%).
- More specifically, types of insect repellent used include DEET-based products (61%), candles or torches such as citronella (28%), chemical-free or natural products such as essential oils (23%), coils (22%), wearable repellent devices (16%), nets or netting (14%), smoke repellents (12%), sonic or heat-dispersed repellents (10%), fans (6%), and Icaridin-based products (3%), while 8% do not know which type they use.
- Among users of body-applied insect repellent, repellent is most often applied to arms (88%), legs (85%), neck (80%), hands (64%), clothing (62%), feet (52%), face (48%), and hair (33%), with very few applying it to all exposed areas (1%).
- Among respondents who do not use insect repellent, the most commonly reported reasons include concern about chemicals (35%), lack of perceived need (22%), dislike of the smell (22%), belief that it is not effective (19%), cost (12%), allergies (6%), and damage to clothing (6%), while very small proportions cite other reasons or preferred not to answer.
- Among respondents who do not take steps to prevent mosquito bites, the most common reason is the belief that there are not many mosquitoes where they live (21%), followed by perceptions that mosquito-borne diseases are not serious (10%) or that they will not get bitten (9%), with smaller proportions citing cost (5%), lack of information (5%), too much information (4%), or another reason (5%), while just over half report no particular reason (51%).
- Among respondents who do not take steps to prevent tick bites, the most common reason is the belief that there are not many ticks where they live (28%), followed by beliefs that they will not get bitten (16%) or that they lack information (10%), with smaller proportions citing perceptions of low disease seriousness (4%), cost (3%), too much information (2%), or another reason (5%), while nearly half report no particular reason (47%).

- Among respondents who travelled within Canada in the past 12 months, close to three out of five report being aware of mosquito and mosquito-borne disease risks when travelling (59%), including 14% who are very aware and 45% who are moderately aware, while 40% report not being aware (not very or not at all aware).
- Among respondents who travelled outside Canada in the past 12 months, nearly two thirds report being aware of mosquito and mosquito-borne disease risks when travelling (65%), including 21% who are very aware and 44% who are moderately aware, while 34% report not being aware (not very or not at all aware).
- Less than half of respondents report having taken steps to reduce mosquitoes where they live or spend time (46%), while about one quarter report having taken steps to reduce ticks (26%).
- Among respondents who take steps to reduce mosquitoes, the most reported actions include removing standing water (80%), fixing or replacing torn screens (70%), keeping gutters clean (52%), and replacing water in bird baths (37%), while very small proportions report other actions or none.
- Among respondents who do not take steps to reduce mosquitoes, the most reported reasons include lack of information on what to do (30%), not knowing it was possible (28%), perceptions that mosquitoes are not a serious issue (25%), lack of time (7%), cost (6%), or no need (21%).
- Among respondents who take steps to reduce ticks, the most reported actions include removing piles of leaves or brush (74%), mowing the lawn frequently (71%), pruning shrubs and trees (49%), and using wood chips or mulch (38%), while very small proportions report other actions or none.
- Among respondents who do not take steps to reduce ticks, the most reported reasons include lack of information (34%), not knowing it was possible (33%), no need (24%), perceptions that ticks are not a serious issue (18%), lack of time (5%), or cost (5%).
- Awareness that vaccines and medications are available for some mosquito-borne diseases is reported by just under half of respondents (46%), while 53% say they were not aware.
- When asked about travelling to countries where mosquito-borne diseases are common, more than two thirds of respondents say they would consider vaccines or medications (68%), while 8% say they would not, 14% are unsure, and 8% say they never travel outside Canada.
- Nearly three quarters of respondents believe they are at risk (high or medium risk) of mosquito-borne diseases when travelling to other countries (74%), just over half feel at risk when spending time outdoors (56%), and just over one in five feel at risk during routine daily activities (22%).
- Concern about becoming sick after a mosquito bite in Canada is reported by 22% of respondents, including 5% who are very concerned and 18% who are somewhat concerned, while 75% report they are not concerned (not very or not at all concerned).
- Concern about becoming sick after a mosquito bite outside Canada is reported by 58% of respondents, including 18% who are very concerned and 40% who are somewhat concerned, while 27% report they are not concerned (not very or not at all concerned) and 15% do not know or preferred not to answer.

## 2.4 Workplace exposure and information

- Among respondents whose job requires them to spend most or all of their working hours outdoors, about one third report receiving employer-provided information on avoiding mosquito bites (35%) and tick bites (29%).
- Fewer than four in ten outdoor workers report that their employer provides protective equipment such as insect repellents or protective clothing (38%), while 58% report that their employer does not.
- Roughly six in ten outdoor workers report feeling well informed about how to protect themselves from mosquito-related risks (62%) and tick-related risks (59%) while on the job.

## 2.5 Information seeking and awareness

- Over one quarter of respondents report having looked for information on mosquito-borne diseases (27%), while the majority say they have not (71%), including 30% who say they may look for information in the future and 40% who say they do not plan to do so.
- Over one third of respondents report having looked for information on tick-borne diseases (37%), while 61% say they have not, including 28% who say they plan to look for information and 33% who say they do not plan to do so.
- Among respondents who have not looked for information on mosquitoes or mosquito-borne diseases, the most commonly cited reasons include a lack of perceived need (34%), feeling already well informed (18%), not knowing the information was available (16%), not knowing where to find it (16%), lack of time (14%), and not being aware of mosquito-borne diseases prior to the survey (12%).
- Among respondents who have not looked for information on ticks or tick-borne diseases, the most commonly cited reasons include a lack of perceived need (30%), not knowing where to find the information (17%), feeling already well informed (16%), not knowing the information was available (15%), lack of time (14%), and not being aware of tick-borne diseases prior to the survey (12%).
- Among respondents who have looked for information on mosquito-borne diseases, the most frequently sought topics include symptoms (77%), ways to protect themselves (70%), available treatments (58%), and how mosquito-borne diseases are spread (54%).
- Among respondents who have looked for information on tick-borne diseases, the most frequently sought topics include symptoms (85%), ways to protect themselves (71%), available treatments (63%), and how tick-borne diseases are spread (53%).
- Prior to completing the survey, awareness of eTick is low, with 13% of respondents reporting they had heard of it, including 3% who had used it and 10% who were aware of it but had never used it.
- Health care professionals are the most cited source of health-related information (65%), followed by search engines such as Google (50%), pharmacists or pharmacies (47%), medical websites (42%), government sources (37%), friends or family (29%), social media (15%), and artificial intelligence tools such as ChatGPT (12%).

### ***1.4 Statement of Limitations***

The results of this survey are not statistically projectable to the target population because the sampling method used does not ensure that the sample represents the target population with a known margin of sampling error. Reported percentages are not generalizable to any group other than the sample studied, and therefore no formal statistical inferences can be drawn between the sample results and the broader target population it may be intended to reflect. The sample data have been weighted to reflect the demographic composition of the Canadian population aged 18 and older.

### ***1.5 Notes on Interpretation of Research Findings***

The views and observations expressed in this document do not reflect those of Health Canada or the Public Health Agency of Canada. This report was compiled by Leger based on the research conducted specifically for this project. This research is not probabilistic; the results cannot be inferred to the general population of Canada.

### ***1.6 Political Neutrality Statement and Contact Information***

I hereby certify, as chief agent of Leger, that the deliverables are in full compliance with the neutrality requirements of the [Policy on Communications and Federal Identity](#) and the [Directive on the Management of Communications](#).

Specifically, the deliverables do not include information on electoral voting intentions, political party preferences, party positions, or the assessment of the performance of a political party or its leaders.

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## 2. Detailed Results

This section of the report presents the descriptive findings for each survey question for the total sample, as well as for each key population. In some cases, tables were split into two separate tables because they did not fit within the page margins. Statistically significant differences across socio-demographic characteristics are subsequently identified and presented below the tables. It should be noted that in the report the word Canadians is used, meaning anyone living in Canada.

### Note on testing for statistical differences

The test is performed by comparing a given percentage to the percentage formed by the complement of the relevant category (for example, within the target audience subgroup, people aged 55 years and older are compared with those under 55 years of age). It is important to note that this method does **not** compare subgroups within the target audience to one another but rather compares each subgroup to its complement. Test results are included in the tables below and in the separate tables file when they are statistically significant at a confidence level of at least 95%. Since significance is influenced by sample size and response distribution, some differences that appear modest in absolute terms (e.g., 5% or 6%) may nonetheless be statistically significant.

To aid interpretation, statistically higher results (i.e., more likely compared to the complement group) are shown in **green** with a “+” symbol, while statistically lower results (less likely) are shown in **red** with a “-” symbol.

For clarity and readability, the socio-demographic analysis included in this report focuses primarily on highlighting statistically higher results. The full set of results, including all statistically significant findings, is available in the separate tables file.

### 2.1 General knowledge and awareness

#### 2.1.1 General knowledge of diseases transmitted by mosquitoes

Almost all respondents (96%) think that mosquitoes can transmit diseases, while very few indicated that mosquitoes do not transmit diseases (2%) or that they did not know how to answer this question (2%).

Table 1. Do you think mosquitoes can carry diseases?

GA1	Total	Residents of high-risk areas for ticks	Parents of children 0-14	Outdoor enthusiasts	Occupation exposures	Travelled to another region in Canada	Travelled outside Canada	Living in a rural area	Cats and dogs owners
n= (weighted)	5,006	3,500	1,044	3,609	470	3,270	1,820	1,422	2,596
n= (unweighted)	5,006	3,504	1,129	3,644	471	3,347	1,976	1,351	2,580
Yes	96%	96%	95%	<b>96%+</b>	<b>92%-</b>	96%	96%	<b>94%-</b>	96%
No	2%	2%	<b>3%+</b>	<b>1%-</b>	<b>5%+</b>	2%	2%	2%	2%
DNK	2%	2%	2%	2%	2%	2%	2%	3%	2%

Base: all respondents

The following subgroups were more likely to think that mosquitoes can transmit diseases:

- Respondents aged 55 years old and more (98%)
- Respondents with a household income of \$100k and more (97%)
- Ontario residents (97%)

### 2.1.2 Knowledge of diseases transmitted by mosquitoes in different countries

Nearly all respondents believe that mosquitoes transmit diseases in other countries (97%), while most think mosquitoes carry diseases in the United States (88%) and in Canada (86%).

Table 2. Do you think there are mosquitoes that carry diseases... SUMMARY % YES

GA2	Total	Residents of high-risk areas for ticks	Parents of children 0-14	Outdoor enthusiasts	Occupation exposures	Travelled to another region in Canada	Travelled outside Canada	Living in a rural area	Cats and dogs owners
n= (weighted)	4,791	3,347	996	3,475	433	3,137	1,751	1,342	2,494
n= (unweighted)	4,803	3,359	1,083	3,518	437	3,220	1,911	1,280	2,481
In other countries	97%	97%	97%	98%+	95%	97%	98%+	97%	97%
In the United-States	88%	88%	86%-	89%+	88%	88%	87%	90%+	89%
In Canada	86%	86%	83%-	87%+	86%	85%	85%	88%+	86%

Base: respondents who think that mosquitoes can carry diseases

The following subgroups were more likely to think that there are mosquitoes that can carry diseases in other countries:

- Newfoundland respondents (100%)
- Respondents with a household income of \$100k and more (99%)
- Respondents aged 55 years old and more (98%)
- Non-racialized respondents (98%)

The following subgroups were more likely to think that there are mosquitoes that can carry diseases in the United-States:

- Respondents who mostly speak French at home (93%)
- Respondents aged 55 years old and more (92%)
- Ontario and Quebec residents (91%)
- Respondents living in a rural area (91%)
- Non-racialized respondents (90%)

- Respondents with a household income of less than \$40k (90%)
- Respondents with no children (89%)

The following subgroups were more likely to think that there are mosquitoes that can carry diseases in Canada:

- Respondents who mostly speak French at home (91%)
- Ontario residents (90%)
- Respondents aged 55 years old and more (89%)
- Respondents living in a rural area (89%)
- Quebec residents (88%)
- Non-racialized respondents (88%)
- Respondents with no children (86%)

### 2.1.3 Familiarity with mosquito-borne diseases

Regarding familiarity with mosquito-borne diseases, the most familiar to respondents is malaria (53%), closely followed by West Nile virus (47%). Yellow fever follows, recognized by less than a third of respondents (29%), and dengue and Zika by a quarter (25%). Other mosquito-borne diseases are less known, with fewer than one in ten respondents indicating awareness of chikungunya (8%), Eastern equine encephalitis (7%), and Japanese encephalitis (7%). The least familiar are the California serogroup (3%) and Oropouche virus (3%).

Table 3. How familiar are you with each of the following diseases? *SUMMARY % FAMILIAR*

GA3	Total	Residents of high-risk areas for ticks	Parents of children 0-14	Outdoor enthusiasts	Occupation exposures	Travelled to another region in Canada	Travelled outside Canada	Living in a rural area	Cats and dogs owners
n= (weighted)	5,006	3,500	1,044	3,609	470	3,270	1,820	1,422	2,596
n= (unweighted)	5,006	3,504	1,129	3,644	471	3,347	1,976	1,351	2,580
<b>Malaria</b>	53%	<b>55%+</b>	<b>61%+</b>	<b>56%+</b>	<b>61%+</b>	<b>58%+</b>	<b>58%+</b>	<b>48%-</b>	<b>55%+</b>
<b>West Nile virus</b>	47%	<b>48%+</b>	<b>53%+</b>	<b>51%+</b>	<b>54%+</b>	<b>49%+</b>	48%	47%	<b>52%+</b>
<b>Yellow fever</b>	29%	<b>31%+</b>	<b>38%+</b>	<b>30%+</b>	<b>40%+</b>	<b>32%+</b>	<b>35%+</b>	<b>24%-</b>	<b>31%+</b>
<b>Dengue</b>	25%	<b>26%+</b>	<b>30%+</b>	25%	<b>33%+</b>	<b>27%+</b>	<b>30%+</b>	<b>19%-</b>	25%
<b>Zika</b>	25%	<b>26%+</b>	<b>39%+</b>	<b>27%+</b>	<b>33%+</b>	<b>28%+</b>	<b>31%+</b>	<b>18%-</b>	<b>27%+</b>
<b>Chikungunya</b>	8%	<b>9%+</b>	<b>16%+</b>	<b>7%-</b>	<b>17%+</b>	<b>9%+</b>	<b>10%+</b>	<b>5%-</b>	7%
<b>Eastern equine encephalitis</b>	7%	8%	<b>12%+</b>	<b>8%+</b>	<b>18%+</b>	<b>9%+</b>	8%	7%	<b>9%+</b>
<b>Japanese encephalitis</b>	7%	<b>7%+</b>	<b>12%+</b>	6%	<b>16%+</b>	<b>8%+</b>	<b>9%+</b>	<b>4%-</b>	7%

<b>California serogroup</b>	3%	4%	8%+	3%	15%+	4%+	4%+	2%-	4%+
<b>Oropouche virus</b>	3%	4%+	8%+	3%	15%+	4%+	5%+	2%-	4%+

Base: all respondents

The following subgroups were more likely to be familiar (very or somewhat) with the different diseases:

- Respondents who identify as South Asian (78% with malaria, 68% with dengue, 48% with yellow fever, 39% with chikungunya, 35% with Zika, 18% with Japanese encephalitis, 14% with Eastern equine encephalitis, 13% with Oropouche virus and 12% with California serogroup).
- Respondents who mostly speak English at home (61% with malaria, 54% with West Nile virus, 33% with yellow fever, 28% with Zika, 28% with dengue, 9% with chikungunya, 8% with Eastern equine encephalitis, 7% with Japanese encephalitis, 4% with California serogroup and 4% with Oropouche virus).
- Respondents living in large urban centres (58% with malaria, 49% with West Nile virus, 33% with yellow fever, 29% with dengue, 28% with Zika, 10% with chikungunya, 8% with Japanese encephalitis and 4% with California serogroup).
- Ontario residents (60% with malaria, 58% with West Nile virus, 33% with yellow fever, 29% with Zika, 28% with dengue, 10% with chikungunya, 9% with Eastern equine encephalitis, 4% with California serogroup and 4% with Oropouche virus).
- Respondents with a household income of \$100k and more (60% with malaria, 53% with West Nile virus, 33% with yellow fever, 32% with Zika, 28% with dengue, 9% with Eastern equine encephalitis, 8% with Japanese encephalitis and 4% with Oropouche virus).
- Respondents in the workforce (56% with malaria, 49% with West Nile virus, 32% with yellow fever, 29% with Zika, 28% with dengue, 10% with chikungunya, 9% with Eastern equine encephalitis, 8% with Japanese encephalitis, 5% with California serogroup and 5% with Oropouche virus).
- Respondents aged between 18 to 34 years old (59% with malaria, 35% with yellow fever, 31% with Zika, 31% with dengue, 14% with chikungunya, 12% with Japanese encephalitis, 10% with Eastern equine encephalitis, 8% with California serogroup and 8% with Oropouche virus).
- Respondents who identify as men (32% with yellow fever, 9% with chikungunya, 8% with Eastern equine encephalitis, 8% with Japanese encephalitis, 5% with California serogroup and 5% with Oropouche virus).

#### 2.1.4 Familiarity with tick-borne diseases

Regarding familiarity with tick-borne diseases, the most familiar to respondents is Lyme disease (62%). Other tick-borne diseases are less known, with one in ten respondents (10%) mentioning Rocky Mountain spotted fever, followed by anaplasmosis (5%), babesiosis (4%), and Powassan virus disease (4%).

Table 4. How familiar are you with each of the following diseases? **SUMMARY % FAMILIAR**

GA3	Total	Residents of high-	Parents of	Outdoor enthusiasts	Occupation exposures	Travelled to another	Travelled outside Canada	Living in a	Cats and
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		risk areas for ticks	children 0-14			region in Canada		rural area	dogs owners
n= (weighted)	5,006	3,500	1,044	3,609	470	3,270	1,820	1,422	2,596
n= (unweighted)	5,006	3,504	1,129	3,644	471	3,347	1,976	1,351	2,580
<b>Lyme disease</b>	62%	63%	<b>65%+</b>	<b>66%+</b>	60%	<b>65%+</b>	63%	<b>65%+</b>	<b>69%+</b>
<b>Rocky Mountain spotted fever</b>	10%	10%	<b>15%+</b>	<b>11%+</b>	<b>21%+</b>	<b>11%+</b>	10%	10%	<b>12%+</b>
<b>Anaplasmosis</b>	5%	<b>5%+</b>	<b>10%+</b>	5%	<b>15%+</b>	<b>6%+</b>	5%	<b>4%-</b>	<b>6%+</b>
<b>Babesiosis</b>	4%	<b>4%+</b>	<b>9%+</b>	4%	<b>15%+</b>	<b>5%+</b>	4%	3%	<b>5%+</b>
<b>Powassan virus disease</b>	4%	<b>4%+</b>	<b>8%+</b>	4%	<b>15%+</b>	<b>4%+</b>	<b>5%+</b>	<b>2%-</b>	<b>5%+</b>

Base: all respondents

The following subgroups were more likely to be familiar (very or somewhat) with the different diseases:

- Respondents who identify as Indigenous (75% with Lyme disease, 19% with Rocky Mountain spotted fever, 13% with anaplasmosis and 12% with babesiosis).
- Respondents with a household income of \$100k and more (68% with Lyme disease, 7% with anaplasmosis, 5% with babesiosis and 5% with Powassan virus disease).
- Ontario residents (67% with Lyme disease, 11% with Rocky Mountain spotted fever, 6% with anaplasmosis, 5% with babesiosis and 5% with Powassan virus disease).
- Respondents who mostly speak English at home (66% with Lyme disease, 12% with Rocky Mountain spotted fever, 5% with anaplasmosis, 4% with babesiosis and 4% with Powassan virus disease).
- Respondents who identify as South Asian (18% with Rocky Mountain spotted fever, 14% with babesiosis, 13% with anaplasmosis and 13% with Powassan virus disease).
- Respondents aged between 18 to 34 years old (12% with Rocky Mountain spotted fever, 9% with babesiosis, 8% with anaplasmosis and 8% with Powassan virus disease).
- Respondents in the workforce (11% with Rocky Mountain spotted fever, 6% with anaplasmosis, 5% with babesiosis and 5% with Powassan virus disease).
- Respondents who identify as men (11% with Rocky Mountain spotted fever, 6% with anaplasmosis, 5% with babesiosis and 5% with Powassan virus disease).

### 2.1.5 Familiarity with other diseases

Regarding familiarity with other diseases, the most familiar to respondents is COVID-19 (91%). More than half (53%) are familiar with avian influenza (bird flu), and more than one third are familiar with norovirus (37%).

Table 5. How familiar are you with each of the following diseases? *SUMMARY % FAMILIAR*

<b>GA3</b>	<b>Total</b>	<b>Residents of high-risk areas for ticks</b>	<b>Parents of children 0-14</b>	<b>Outdoor enthusiasts</b>	<b>Occupation exposures</b>	<b>Travelled to another region in Canada</b>	<b>Travelled outside Canada</b>	<b>Living in a rural area</b>	<b>Cats and dogs owners</b>
n= (weighted)	5,006	3,500	1,044	3,609	470	3,270	1,820	1,422	2,596
n= (unweighted)	5,006	3,504	1,129	3,644	471	3,347	1,976	1,351	2,580
<b>COVID-19</b>	91%	91%	92%	<b>92%+</b>	89%	<b>92%+</b>	<b>93%+</b>	<b>89%-</b>	<b>91%+</b>
<b>Avian influenza (bird flu)</b>	53%	<b>54%+</b>	<b>58%+</b>	<b>55%+</b>	<b>59%+</b>	<b>55%+</b>	<b>55%+</b>	51%	<b>57%+</b>
<b>Norovirus</b>	37%	<b>39%+</b>	<b>46%+</b>	<b>40%+</b>	39%	<b>41%+</b>	<b>41%+</b>	<b>34%-</b>	<b>41%+</b>

Base: all respondents

The following subgroups were more likely to be familiar (very or somewhat) with the different diseases:

- Respondents with a household income of \$100k and more (93% with COVID-19, 59% with avian influenza and 45% with Norovirus).
- Respondents living in large urban centres (92% with COVID-19, 55% with avian influenza and 40% with norovirus).
- Respondents who identify as women (93% with COVID-19 and 41% with norovirus).
- Respondents who identify as Indigenous (67% with avian influenza and 51% with norovirus).
- British-Columbia residents (57% with avian influenza and 46% with norovirus).
- Respondents aged between 35 and 54 years old (57% with avian influenza and 43% with norovirus).
- Ontario residents (56% with avian influenza and 46% with norovirus).
- Respondents who mostly speak English at home (56% with avian influenza and 46% with norovirus).
- Respondents in the workforce (54% with avian influenza and 40% with norovirus).

## 2.2 Perception of risk

### 2.2.1 Concern about mosquito-borne diseases

Among respondents who reported being very, somewhat or not very familiar with the diseases, concern is expressed by 51% for Oropouche virus, 50% for California serogroup viruses, 49% for chikungunya, and 47% for West Nile virus. Among those familiar with Eastern equine encephalitis, Japanese encephalitis, and Zika, roughly two in five express concerns (43%, 42%, and 40%, respectively). Among respondents familiar with malaria, dengue, and yellow fever, about one third express concern (36%, 36%, and 34%, respectively).

Table 6. How concerned are you about each of the following diseases? **SUMMARY % CONCERNED**

PR1	Total*	Residents of high-risk areas for ticks	Parents of children 0-14	Outdoor enthusiasts	Occupation exposures	Travelled to another region in Canada	Travelled outside Canada	Living in a rural area	Cats and dogs owners
<b>Oropouche virus</b> (n=702)	51%	<b>54%+</b>	<b>60%+</b>	50%	<b>65%+</b>	<b>56%+</b>	<b>59%+</b>	48%	54%
<b>California serogroup</b> (n=730)	50%	50%	<b>61%+</b>	49%	<b>64%+</b>	<b>54%+</b>	<b>56%+</b>	43%	53%
<b>Chikungunya</b> (n=1,140)	49%	<b>51%+</b>	<b>59%+</b>	47%	<b>65%+</b>	51%	52%	<b>42%-</b>	49%
<b>West Nile Virus</b> (n=4,029)	47%	<b>50%+</b>	47%	47%	50%	48%	47%	45%	48%
<b>Eastern equine encephalitis</b> (n=1,259)	43%	<b>46%+</b>	<b>57%+</b>	<b>40%-</b>	<b>62%+</b>	<b>45%+</b>	46%	<b>37%-</b>	44%
<b>Japanese encephalitis</b> (n=1,151)	42%	<b>44%+</b>	<b>49%+</b>	41%	<b>51%+</b>	<b>45%+</b>	43%	<b>30%-</b>	44%
<b>Zika</b> (n=2,655)	40%	<b>44%+</b>	43%	<b>38%-</b>	<b>52%+</b>	41%	<b>43%+</b>	<b>32%-</b>	39%
<b>Malaria</b> (n=4,307)	36%	<b>38%+</b>	<b>41%+</b>	<b>35%-</b>	<b>47%+</b>	<b>37%+</b>	<b>39%+</b>	<b>29%-</b>	36%
<b>Dengue</b> (n=2,722)	36%	<b>39%+</b>	<b>43%+</b>	<b>34%-</b>	<b>51%+</b>	37%	<b>40%+</b>	<b>28%-</b>	35%
<b>Yellow fever</b> (n=3,330)	34%	<b>36%+</b>	<b>41%+</b>	<b>32%-</b>	<b>47%+</b>	35%	35%	<b>29%-</b>	34%

Base: respondents who are very, somewhat or not very familiar with the diseases\*

\*Note: Base is variable, as this question was shown only to respondents who were very, somewhat or not very familiar with the disease in question. Unweighted n is shown for each disease.

The respondents who were at least a little familiar (very, somewhat or not very) with a disease in the following subgroups were more likely to be concerned (very or somewhat) with the different diseases:

- Racialized respondents (67% with chikungunya, 62% with Oropouche virus, 60% with Eastern equine encephalitis, 59% with California serogroup, 58% with dengue, 55% with Zika, 55% with West Nile virus, 55% with malaria, 52% with Yellow fever and 51% with Japanese encephalitis.
- Respondents aged 18 to 34 years old (63% with chikungunya, 61% with Oropouche virus, 56% with Eastern equine encephalitis, 55% with California serogroup, 50% with dengue, 50% with malaria, 49% with Japanese encephalitis, 48% with Zika and 46% with Yellow fever).

- Ontario residents (58% with West Nile virus, 56% with chikungunya, 50% with Japanese encephalitis, 47% with Eastern equine encephalitis, 46% with Zika, 42% with malaria, 42% with dengue and 38% with Yellow fever).
- Respondents living in large urban centres (49% with West Nile virus, 46% with Japanese encephalitis, 44% with Zika, 39% with malaria, 39% with dengue and 36% with Yellow fever).

### 2.2.2 Concern about tick-borne diseases

Respondents were asked about their concern level towards each of the diseases they stated being very, somewhat, or not very familiar with. 71% of those familiar with Lyme disease express concern. About half of those familiar with Powassan virus disease (51%), babesiosis (50%), and anaplasmosis (48%) also express concern. Among respondents familiar with Rocky Mountain spotted fever, close to two in five express concern (43%).

Table 7. How concerned are you about each of the following diseases? **SUMMARY % CONCERNED**

PR1	Total*	Residents of high-risk areas for ticks	Parents of children 0-14	Outdoor enthusiasts	Occupation exposures	Travelled to another region in Canada	Travelled outside Canada	Living in a rural area	Cats and dogs owners
Lyme disease (n=4,472)	71%	72%	71%	72%+	75%+	72%+	72%	73%	72%
Powassan virus disease (n=742)	51%	53%	58%+	50%	65%+	54%+	58%+	41%-	53%
Babesiosis (n=743)	50%	52%	60%+	49%	61%+	54%+	59%+	44%	53%
Anaplasmosis (n=891)	48%	50%+	59%+	48%	61%+	52%+	55%+	43%	52%+
Rocky Mountain spotted fever (n=1,516)	43%	44%	54%+	42%	59%+	45%+	48%+	38%-	45%+

Base: respondents who are very, somewhat or not very familiar with the diseases\*

\*Note: Base is variable, as this question was shown only to respondents who were very, somewhat or not very familiar with the disease in question. Unweighted n is shown for each disease.

The respondents who were at least a little familiar (very, somewhat or not very) with a disease in the following subgroups were more likely to be concerned (very or somewhat) with the different diseases:

- Respondents who identify as South Asian (72% with anaplasmosis, 70% with babesiosis, 70% with Powassan virus disease and 68% with Rocky Mountain spotted fever).
- Respondents ages between 18 and 34 years old (59% with Powassan virus disease, 57% with babesiosis, 57% with anaplasmosis and 52% with Rocky Mountain spotted fever).

### 2.2.3 Concern about other diseases

Among respondents who are familiar with each disease, concern is highest for COVID-19 (60%). Just over half also report concern about norovirus (54%) and avian influenza (bird flu) (51%).

**Table 8. How concerned are you about each of the following diseases? SUMMARY % CONCERNED**

PR1	Total*	Residents of high-risk areas for ticks	Parents of children 0-14	Outdoor enthusiasts	Occupation exposures	Travelled to another region in Canada	Travelled outside Canada	Living in a rural area	Cats and dogs owners
<b>COVID-19</b> (n=4,846)	60%	63%+	55%-	60%	58%	62%+	60%	55%-	58%-
<b>Norovirus</b> (n=3,150)	54%	55%+	57%+	52%	54%	55%	54%	49%-	54%
<b>Avian influenza (bird flu)</b> (n=4,307)	51%	53%+	50%	51%	57%+	52%	51%	48%-	52%

Base: respondents who are familiar with the diseases\*

\*Note: Base is variable, as this question was shown only to respondents who were familiar with the disease in question. Unweighted n is shown for each disease.

The respondents who were at least a little familiar with a disease in the following subgroups were more likely to be concerned with the different diseases:

- Respondents aged 55 years old or older (70% with COVID-19, 57% with norovirus and 55% with avian influenza).
- Racialized respondents (67% with COVID-19, 59% with norovirus and 59% with avian influenza).
- Ontario residents (66% with COVID-19, 58% with norovirus and 56% with avian influenza).
- Respondents who mostly speak English at home (63% with COVID-19, 55% with norovirus and 53% with avian influenza).
- Allophone respondents (69% with COVID-19 and 61% with avian influenza).
- Respondents with a household income of less than \$40k (64% with COVID-19 and 58% with avian influenza).
- Respondents living in large urban centres (63% with COVID-19 and 54% with avian influenza).
- Respondents who identify as women (62% with COVID-19 and 57% with norovirus).

### 2.2.4 Source of knowledge concerning mosquito-borne diseases

Among respondents familiar (very, somewhat, or not very familiar) with one or more mosquito-borne diseases, 44% identified the local news as the first source where they heard about them. One third (33%) mentioned social media and friends and family. Close to a quarter (26%) reported learning about mosquito-borne diseases through internet research, while nearly one in five (18%) cited the federal government and travel health clinics.

Additionally, 16% mentioned advertisements, and 15% indicated they heard about these diseases from their doctor. One in ten (10%) referred to a pamphlet or handout, while less than one in ten (9%) mentioned the municipal government or their pet's veterinarian.

Few respondents reported hearing about mosquito-borne diseases through school or university (3%), personal experience (1%), work (1%), or other methods (1%). Slightly more than one in ten respondents (14%) said they did not recall where they first heard about mosquito-borne diseases.

*Table 9a. Where did you hear about mosquito-borne diseases?*

PR2	Total	Residents of high-risk areas for ticks	Parents of children 0-14	Outdoor enthusiasts	Occupation exposures
n= (weighted)	4,685	3,287	1,000	3,424	445
n= (unweighted)	4,703	3,298	1,088	3,467	450
<b>Local news</b>	44%	<b>47%+</b>	<b>38%-</b>	<b>46%+</b>	<b>39%-</b>
<b>Social media</b>	33%	34%	<b>37%+</b>	<b>35%+</b>	36%
<b>Friends or family</b>	33%	<b>34%+</b>	<b>39%+</b>	<b>35%+</b>	<b>37%+</b>
<b>Internet search</b>	26%	27%	<b>33%+</b>	<b>28%+</b>	28%
<b>Provincial government</b>	18%	19%	19%	<b>19%+</b>	18%
<b>Federal government</b>	18%	18%	17%	<b>19%+</b>	18%
<b>Travel health clinic</b>	18%	18%	19%	<b>19%+</b>	19%
<b>Advertisement</b>	16%	16%	17%	17%	19%
<b>My doctor</b>	15%	<b>16%+</b>	<b>19%+</b>	<b>16%+</b>	<b>22%+</b>
<b>A pamphlet or handout</b>	10%	10%	10%	<b>11%+</b>	12%
<b>Municipal government</b>	9%	<b>11%+</b>	<b>12%+</b>	<b>10%+</b>	13%
<b>My pet's veterinarian</b>	9%	9%	10%	<b>10%+</b>	11%
<b>Education (school, university, etc.)</b>	3%	3%	3%	3%	3%
<b>My own knowledge / experience / I am knowledgeable about this</b>	1%	1%	1%	1%	2%
<b>Through work</b>	1%	1%	1%	<b>1%+</b>	0%

Other	1%	1%	0%	1%+	0%-
I can't recall	14%	13%-	10%-	12%-	8%-

Base: respondents who are very, somewhat or not very familiar with one or more mosquito-borne diseases

Table 9b. Where did you hear about mosquito-borne diseases?

PR2	Total	Travelled to another region in Canada	Travelled outside Canada	Living in a rural area	Cats and dogs owners
n= (weighted)	4,685	3,108	1,739	1,319	2,462
n= (unweighted)	4,703	3,185	1,894	1,252	2,454
Local news	44%	44%	44%	42%	43%
Social media	33%	34%	34%	35%	35%+
Friends or family	33%	34%+	37%+	31%	34%
Internet search	26%	29%+	27%	24%-	28%+
Provincial government	18%	19%	17%	18%	19%
Federal government	18%	19%+	18%	17%	18%
Travel health clinic	18%	20%+	25%+	16%	18%
Advertisement	16%	16%	16%	19%+	17%
My doctor	15%	16%+	17%+	14%	16%+
A pamphlet or handout	10%	10%+	10%	9%	11%+
Municipal government	9%	10%+	10%	8%-	10%
My pet's veterinarian	9%	10%	9%	10%	15%+
Education (school, university, etc.)	3%	3%+	2%-	3%	3%
My own knowledge / experience / I am knowledgeable about this	1%	1%	1%	1%	1%-
Through work	1%	1%	1%	1%	0%-
Other	1%	1%	0%-	1%	1%
I can't recall	14%	12%-	12%-	15%	13%

Base: respondents who are very, somewhat or not very familiar with one or more mosquito-borne diseases

No significant differences between the different subcategories are observed for this question.

### 2.2.5 Presence of mosquito-borne diseases in their area

Less than one quarter of respondents (23%) mentioned that mosquito-borne diseases (in animals, birds, or humans) had been reported in their area, while nearly half (47%) said they had not. Additionally, close to one third (29%) reported not knowing.

**Table 10. To the best of your knowledge, have mosquito-borne diseases been reported in your area (in animals, birds, or humans)?**

PR3	Total	Residents of high-risk areas for ticks	Parents of children 0-14	Outdoor enthusiasts	Occupation exposures	Travelled to another region in Canada	Travelled outside Canada	Living in a rural area	Cats and dogs owners
n= (weighted)	5,006	3,500	1,044	3,609	470	3,270	1,820	1,422	2,596
n= (unweighted)	5,006	3,504	1,129	3,644	471	3,347	1,976	1,351	2,580
<b>Yes</b>	23%	<b>25%+</b>	25%	<b>26%+</b>	<b>36%+</b>	<b>25%+</b>	<b>26%+</b>	23%	<b>26%+</b>
<b>No</b>	47%	<b>45%-</b>	47%	47%	<b>42%-</b>	48%	47%	<b>51%+</b>	<b>45%-</b>
<b>I don't know</b>	29%	30%	28%	<b>28%-</b>	<b>23%-</b>	<b>27%-</b>	<b>27%-</b>	<b>27%-</b>	29%

Base: all respondents

The following subgroups were more likely to mention that mosquito-borne diseases had been reported in their area:

- Manitoba residents (35%)
- Ontario residents (29%)
- Respondents who mostly speak French at home (28%)
- Respondents with a household income of \$100k and more (27%)
- Respondents aged 55 years or older (26%)
- Non-racialized respondents (25%)

## 2.3 Preventive measures: Knowledge and behaviours

### 2.3.1 Exposure to mosquito-borne diseases

A little over one respondent out of ten (11%) mentioned that either they or someone they know has been diagnosed with a mosquito-borne disease, while nearly the majority (88%) said they had not. 1% preferred not to answer.

**Table 11. Have you or someone you know been diagnosed with a mosquito-borne disease?**

PM1	Total	Residents of high-risk areas for ticks	Parents of children 0-14	Outdoor enthusiasts	Occupation exposures	Travelled to another region in Canada	Travelled outside Canada	Living in a rural area	Cats and dogs owners
n= (weighted)	5,006	3,500	1,044	3,609	470	3,270	1,820	1,422	2,596
n= (unweighted)	5,006	3,504	1,129	3,644	471	3,347	1,976	1,351	2,580

<b>Yes</b>	11%	11%	<b>15%+</b>	<b>12%+</b>	<b>21%+</b>	<b>12%+</b>	<b>13%+</b>	10%	11%
<b>No</b>	88%	88%	<b>84%-</b>	<b>88%-</b>	<b>79%-</b>	<b>87%-</b>	<b>86%-</b>	89%	88%
<b>Prefer not to answer</b>	1%	1%	1%	<b>1%-</b>	0%	<b>1%-</b>	<b>1%-</b>	1%	<b>1%-</b>

Base: all respondents

The following subgroups were more likely to have reported that either they or someone they know has been diagnosed with a mosquito-borne disease:

- Manitoba residents (21%)
- Racialized respondents (17%)
- Respondents with a household income between \$60k and \$100k (13%)
- Respondents aged between 18 and 34 years old (13%)
- Respondents in the workforce (12%)

### 2.3.2 Mosquito-borne diseases that have been diagnosed among respondents or people they know

Among respondents who said that either they or someone they know had been diagnosed with a mosquito-borne disease, just over three-quarters (77%,) were able to identify at least one disease.

Malaria was the most mentioned (30%), followed by dengue (26%) and West Nile virus (24%). Smaller proportions cited chikungunya (9%), yellow fever (8%), and Zika (7%), while fewer mentioned California serogroup viruses (4%), Japanese encephalitis (3%), Eastern equine encephalitis (3%), or Oropouche virus (3%). Nearly one-quarter (23%) said they did not know which mosquito-borne disease it was.

Table 12. Which mosquito-borne disease was it?

PM2	Total	Residents of high-risk areas for ticks	Parents of children 0-14	Outdoor enthusiasts	Occupation exposures	Travelled to another region in Canada	Travelled outside Canada	Living in a rural area	Cats and dogs owners
n= (weighted)	537	393	156	429	98	391	238	144	289
n= (unweighted)	618	446	197	492	122	455	297	153	342
<b>(NET) Any</b>	77%	<b>80%+</b>	<b>85%+</b>	77%	<b>88%+</b>	80%	81%	72%	78%
<b>Malaria</b>	30%	31%	<b>38%+</b>	30%	36%	32%	34%	27%	28%
<b>Dengue</b>	26%	<b>29%+</b>	29%	25%	25%	25%	30%	<b>18%-</b>	25%
<b>West Nile Virus</b>	24%	25%	23%	25%	<b>35%+</b>	<b>27%+</b>	24%	29%	<b>28%+</b>
<b>Chikungunya</b>	9%	<b>11%+</b>	12%	7%	14%	8%	10%	<b>3%-</b>	8%
<b>Yellow fever</b>	8%	8%	<b>18%+</b>	8%	<b>26%+</b>	<b>9%+</b>	9%	5%	<b>11%+</b>
<b>Zika</b>	7%	<b>8%+</b>	<b>11%+</b>	7%	10%	6%	9%	<b>3%-</b>	<b>9%+</b>
<b>California serogroup</b>	4%	<b>5%+</b>	<b>10%+</b>	4%	<b>14%+</b>	<b>5%+</b>	4%	3%	5%

Japanese encephalitis	3%	4%	8%+	4%	13%+	4%	4%	2%	4%
Eastern equine encephalitis	3%	4%	7%+	4%	12%+	4%	5%+	2%	5%+
Oropouche virus	3%	3%	7%+	3%	11%+	3%	4%	2%	5%+
I don't know	23%	20%-	15%-	23%	12%-	20%	19%	28%	22%

Base: respondents who were diagnosed with or know someone who was diagnosed with a mosquito-borne disease

The following subgroups were more likely to be able to identify at least one mosquito-borne disease:

- Racialized respondents (93%)
- Respondents aged between 18 and 34 years old (88%)
- British-Columbia residents (88%)
- Ontario residents (83%)
- Respondents in the workforce (83%)
- Respondents living in large urban centres (82%)
- Respondents who mostly speak English at home (82%)

### 2.3.3 Source of diagnosis for mosquito-borne disease

Among respondents who reported that either they or someone they know had been diagnosed with a mosquito-borne disease, nearly one third (29%) said the diagnosis was made following a doctor visit due to feeling sick or experiencing symptoms. A further 19% said the disease was identified after symptoms began, while 13% reported confirmation through a blood test or other testing. About one in ten indicated that they learned of the diagnosis through friends or family (9%) or following a hospital visit (9%). Smaller proportions mentioned identifying the disease by naming the country where it was contracted (3%) or cited another method (3%). Nearly one-quarter of respondents (23%) said they did not know or preferred not to answer.

Table 13. How did you, or the person you know, find out that you/they had a mosquito-borne disease?

PM3	Total	Residents of high-risk areas for ticks	Parents of children 0-14	Outdoor enthusiasts	Occupation exposures	Travelled to another region in Canada	Travelled outside Canada	Living in a rural area	Cats and dogs owners
n= (weighted)	537	393	156	429	98	391	238	144	289
n= (unweighted)	618	446	197	492	122	455	297	153	342
<b>Diagnosed by doctor / Doctor visit</b>	29%	28%	27%	30%	23%	28%	32%	28%	27%

(feeling sick, symptoms)									
Started having symptoms	19%	21%	20%	20%	23%	17%	23%	11%-	21%
Blood test / Tested	13%	12%	14%	12%	13%	14%	12%	14%	12%
Just heard through friends/family that they had a mosquito-borne disease	9%	8%	6%	8%	6%	10%	7%	13%	10%
Hospital visit	9%	8%	9%	8%	7%	9%	10%	12%	6%-
Names country where they contracted the disease (various)	3%	3%	2%	3%	1%	3%	3%	3%	3%
Other	3%	3%	7%+	3%	6%	3%	3%	4%	4%
I don't know / Prefer not to answer	23%	23%	23%	22%	25%	24%	18%-	22%	23%

Base: respondents who were diagnosed with or know someone who was diagnosed with a mosquito-bound disease

No significant differences between the different subcategories are observed for this question.

### 2.3.4 Exposure to tick bites

Just under two out of five respondents (38%) said that either they or someone they know had been bitten by a tick, while nearly three out of five (61%) reported that neither they nor anyone they know had experienced a tick bite. One percent preferred not to answer.

Table 14. Have you or someone you know been bitten by a tick?

PM1	Total	Residents of high-risk areas for ticks	Parents of children 0-14	Outdoor enthusiasts	Occupation exposures	Travelled to another region in Canada	Travelled outside Canada	Living in a rural area	Cats and dogs owners
n= (weighted)	5,006	3,500	1,044	3,609	470	3,270	1,820	1,422	2,596
n= (unweighted)	5,006	3,504	1,129	3,644	471	3,347	1,976	1,351	2,580
Yes	38%	39%+	43%+	44%+	46%+	43%+	41%+	50%+	43%+
No	61%	60%-	56%-	56%-	54%-	57%-	59%-	50%-	56%-

<b>Prefer not to answer</b>	1%	1%	1%	<b>0%-</b>	1%	<b>1%-</b>	1%	<b>0%-</b>	<b>1%-</b>
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Base: all respondents

The following subgroups were more likely to have reported that either they or someone they know has been bitten by a tick:

- Respondents living in rural areas (53%)
- Respondents living in small population centres (48%)
- Atlantic provinces residents (48%)
- Prairies residents (46%)
- Respondents who mostly speak English at home (42%)
- Non-racialized respondents (42%)
- Respondents with a household income of \$100k and more (42%)
- Respondents who identify as women (42%)
- Respondents aged 55 years old and more (40%)

### 2.3.5 Best practice for tick removal

Nearly two out of three respondents (65%) said that using tweezers is the best way to remove a tick. One in ten (10%) believed that twisting it off is the best method. Smaller proportions mentioned using a tick removal tool or tick key (3%), flicking it off (2%), squishing it (2%), or using heat to burn it off (2%), while 2% cited another method. About three out of twenty respondents (15%) said they did not know.

Table 15. What do you think is the best way to remove a tick attached to your skin or someone else's skin?

PM4	Total	Residents of high-risk areas for ticks	Parents of children 0-14	Outdoor enthusiasts	Occupation exposures	Travelled to another region in Canada	Travelled outside Canada	Living in a rural area	Cats and dogs owners
n= (weighted)	5,006	3,500	1,044	3,609	470	3,270	1,820	1,422	2,596
n= (unweighted)	5,006	3,504	1,129	3,644	471	3,347	1,976	1,351	2,580
<b>With tweezers</b>	65%	64%	63%	<b>67%+</b>	<b>60%-</b>	65%	64%	<b>68%+</b>	66%
<b>Twisting it off</b>	10%	10%	<b>12%+</b>	10%	<b>13%+</b>	10%	10%	11%	<b>12%+</b>
<b>Tick removal tool / Tick key</b>	3%	3%	3%	<b>3%+</b>	2%	3%	3%	<b>4%+</b>	<b>4%+</b>
<b>Flicking it</b>	2%	<b>3%+</b>	<b>5%+</b>	2%	<b>5%+</b>	3%	<b>3%+</b>	<b>1%-</b>	3%
<b>Squishing it</b>	2%	2%	<b>4%+</b>	2%	<b>6%+</b>	2%	2%	2%	2%
<b>Use heat / Burn it (lighter,</b>	2%	2%	1%	2%	3%	2%	2%	2%	2%

match, pin, etc.)									
Other	2%	2%	1%	2%+	2%	2%	2%	2%	2%
I don't know	15%	15%	11%-	11%-	10%-	13%-	14%	10%-	10%-

Base: all respondents

No significant differences between the different subcategories are observed for this question.

### 2.3.6 Next steps after tick removal

Most respondents (92%) said they would take at least one action after removing a tick. Nearly two out of three (63%) reported that they would monitor themselves for symptoms, including signs of a rash. Just under three out of five (58%) said they would consult a health care professional, while just over half (52%) indicated they would keep the tick in a container or bag to bring it to a health care professional. About three out of ten (30%) said they would search for information online. Roughly one in five reported that they would take a picture of the tick and submit it to eTick (22%) or dispose of the tick immediately (22%). Fewer respondents said they would ask a friend or relative for advice (8%), disinfect or clean the area (1%), or take no further action (1%). 6% said they did not know.

Table 16. After removing a tick, which of the following actions would you be most likely to take?

PMS	Total	Residents of high-risk areas for ticks	Parents of children 0-14	Outdoor enthusiasts	Occupation exposures	Travelled to another region in Canada	Travelled outside Canada	Living in a rural area	Cats and dogs owners
n= (weighted)	5,006	3,500	1,044	3,609	470	3,270	1,820	1,422	2,596
n= (unweighted)	5,006	3,504	1,129	3,644	471	3,347	1,976	1,351	2,580
<b>(NET) At least one</b>	92%	92%-	94%+	94%+	91%	93%+	93%	93%	95%+
<b>Monitor yourself for symptoms, including signs of a rash</b>	63%	63%	62%	66%+	49%-	64%	63%	66%+	65%+
<b>Consult a health care professional (doctor, nurse, pharmacist, etc.)</b>	58%	57%	58%	59%+	53%	57%	58%	54%-	56%
<b>Keep the tick in a container or bag and bring it to a health care professional</b>	52%	51%-	55%	55%+	45%-	53%+	52%	53%	54%+

Search for information online (Google, government websites, etc.)	30%	29%	31%	31%+	28%	31%+	30%	24%-	29%
Take a picture of the tick and submit it to eTick	22%	22%	24%	24%+	25%	24%+	23%	21%	24%+
Dispose of the tick immediately	22%	23%	22%	22%	24%	22%	23%	22%	23%+
Ask a friend/relative for advice	8%	8%+	10%+	8%	11%	9%+	9%+	7%	9%+
Disinfect / Clean the area	1%	1%	0%-	1%	1%	1%	1%	1%	1%
Other	0%	0%	0%	0%	0%	0%	0%	1%	1%+
Do nothing / no further action	1%	2%	1%	1%	2%	1%	2%	2%	1%
I don't know	6%	6%	4%-	4%-	6%	5%-	5%	5%	4%-

Base: all respondents

The following subgroups were more likely to have said they would take at least one action after removing a tick:

- Atlantic provinces residents (96%)
- (96%)
- Respondents who identify as women (95%)
- Non-racialized respondents (94%)
- Quebec residents (94%)

### 2.3.7 Tick exposure in pets

Over one-quarter of respondents who are cats and dog owners (28%) said they had found a tick on their pet, while seven out of ten (70%) said they had not. 2% said they did not know or preferred not to answer.

Table 17. Have you ever found a tick on your pet (e.g., dog, cat)?

PM6	Total	Residents of high-risk areas for ticks	Parents of children 0-14	Outdoor enthusiasts	Occupation exposures	Travelled to another region in Canada	Travelled outside Canada	Living in a rural area	Cats and dogs owners
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n= (weighted)	2,596	1,741	635	1,978	318	1,767	932	821	2,596
n= (unweighted)	2,580	1,744	689	1,995	329	1,811	1,016	763	2,580
<b>Yes</b>	28%	<b>30%+</b>	<b>34%+</b>	<b>31%+</b>	<b>37%+</b>	<b>31%+</b>	29%	<b>36%+</b>	28%
<b>No</b>	70%	<b>68%-</b>	<b>64%-</b>	<b>67%-</b>	<b>58%-</b>	<b>67%-</b>	70%	<b>62%-</b>	70%
<b>I don't know / Prefer not to answer</b>	2%	2%	2%	2%	<b>4%+</b>	2%	1%	1%	2%

Base: Cats and dogs owners

The following subgroups within the cats and dogs owners group were more likely to had found a tick on their pet:

- Saskatchewan residents (55%)
- Manitoba residents (54%)
- Nova Scotia residents (47%)
- Respondents living in rural areas (44%)
- Respondents living in small population centres (32%)
- Respondents with a household income of \$100k and more (32%)
- Respondents who identify as women (30%)
- Respondents who mostly speak English at home (29%)
- Non-racialized respondents (29%)

### 2.3.8 First action taken after finding a tick on a pet

Among respondents who had found a tick on their pet, nearly half (49%) said they threw it away. Just over one-quarter (26%) reported that they brought the tick to a veterinarian. Fewer respondents said they took a picture to send to eTick (9%) or removed the tick (5%). Very small proportions reported killing the tick (3%), keeping it in a container (2%), burning it (2%), calling or sending a picture to a veterinarian (1%), or attempting to identify the type of tick (1%). 1% said they did not know or preferred not to answer.

Table 18. What was the first thing you did with the tick?

PM7	Total	Residents of high-risk areas for ticks	Parents of children 0-14	Outdoor enthusiasts	Occupation exposures	Travelled to another region in Canada	Travelled outside Canada	Living in a rural area	Cats and dogs owners
n= (weighted)	730	528	217	617	119	549	267	299	730
n= (unweighted)	743	547	245	632	130	570	299	285	743
<b>Throw it away</b>	49%	49%	<b>41%-</b>	50%	<b>37%-</b>	<b>46%-</b>	46%	<b>56%+</b>	49%
<b>Bring it to the veterinarian</b>	26%	27%	<b>32%+</b>	26%	<b>42%+</b>	<b>29%+</b>	<b>31%+</b>	22%	26%
<b>Take a picture to send to eTick</b>	9%	8%	<b>15%+</b>	<b>8%-</b>	<b>15%+</b>	9%	<b>12%+</b>	<b>5%-</b>	9%
<b>Removed it</b>	5%	5%	<b>2%-</b>	5%	<b>0%-</b>	5%	4%	5%	5%

<b>Killed it (unspecified)</b>	3%	3%	2%	4%	<b>0%-</b>	3%	3%	5%	3%
<b>Keep in container / keep in container while monitoring for symptoms</b>	2%	2%	1%	2%	1%	2%	1%	2%	2%
<b>Burn it</b>	2%	2%	2%	2%	2%	1%	1%	2%	2%
<b>Telephoned/took picture for the veterinarian</b>	1%	1%	1%	1%	1%	1%	<b>0%-</b>	1%	1%
<b>Identify type of tick</b>	1%	1%	1%	<b>1%+</b>	<b>0%-</b>	<b>1%+</b>	1%	1%	1%
<b>Other</b>	1%	1%	1%	1%	0%	1%	0%	0%	1%
<b>None / Nothing</b>	0%	0%	0%	0%	1%	0%	0%	0%	0%
<b>I don't know / Prefer not to answer</b>	1%	1%	1%	1%	1%	1%	1%	0%	1%

Base: respondents who found a tick on their pet

No significant differences between the different subcategories are observed for this question.

### 2.3.9 Human vaccine for Lyme disease

Just over half of respondents (53%) said they would consider getting a human vaccine for Lyme disease if it were available in Canada. 15% said they would not consider getting it, while nearly one third (32%) said they did not know or preferred not to answer.

Table 19. If a human vaccine for Lyme disease was available in Canada, would you consider getting it?

PM8	Total	Residents of high-risk areas for ticks	Parents of children 0-14	Outdoor enthusiasts	Occupation exposures	Travelled to another region in Canada	Travelled outside Canada	Living in a rural area	Cats and dogs owners
n= (weighted)	5,006	3,500	1,044	3,609	470	3,270	1,820	1,422	2,596
n= (unweighted)	5,006	3,504	1,129	3,644	471	3,347	1,976	1,351	2,580
<b>Yes</b>	53%	<b>55%+</b>	53%	<b>56%+</b>	56%	<b>56%+</b>	<b>56%+</b>	51%	<b>55%+</b>
<b>No</b>	15%	14%	<b>18%+</b>	14%	<b>22%+</b>	14%	14%	<b>17%+</b>	15%
<b>In don't know / Prefer not to answer</b>	32%	<b>31%-</b>	<b>29%-</b>	<b>30%-</b>	<b>22%-</b>	<b>30%-</b>	<b>30%-</b>	32%	<b>29%-</b>

Base: all respondents

The following subgroups were more likely to said they would consider getting a human vaccine for Lyme disease if it were available in Canada:

- Nova Scotia residents (64%)

- Quebec residents (60%)
- Respondents who mostly speak French at home (60%)
- Respondents with a household income of \$100k and more (58%)
- Respondents age between 18 and 34 years old (57%)
- Non-racialized respondents (55%)

### 2.3.10 Protective measures against mosquitoes

Most respondents (88%) said they take at least one precaution to protect themselves and their family from mosquitoes. The most reported measure was using insect repellent (72%). About half said they wear pants (54%) or long-sleeved shirts (53%). Roughly one third reported wearing a hat (32%), while just under three in ten said they wear light-coloured clothing (28%), pull socks over their pants (28%), or wear insect-repellent clothing (27%). About one in five respondents (21%) said they wear or use netting, and 2% mentioned another precaution. One out of ten (10%) said they do not take precautions, and one percent (1%) preferred not to answer.

Table 20a. What do you do to protect yourself and your family from mosquitoes?

PM9	Total	Residents of high-risk areas for ticks	Parents of children 0-14	Outdoor enthusiasts	Occupation exposures
n= (weighted)	5,006	3,500	1,044	3,609	470
n= (unweighted)	5,006	3,504	1,129	3,644	471
<b>(NET) AT LEAST ONE</b>	88%	88%	<b>93%+</b>	<b>91%+</b>	91%
<b>Use insect repellent</b>	72%	<b>71%-</b>	<b>76%+</b>	<b>75%+</b>	<b>65%-</b>
<b>Wear pants</b>	54%	<b>55%+</b>	<b>51%-</b>	55%	<b>45%-</b>
<b>Wear long-sleeved shirts</b>	53%	54%	52%	53%	<b>46%-</b>
<b>Wear a hat</b>	32%	33%	30%	<b>35%+</b>	34%
<b>Wear light-coloured clothing</b>	28%	29%	<b>24%-</b>	29%	26%
<b>Pull socks over pants</b>	28%	29%	27%	28%	25%
<b>Wear insect-repellent clothing</b>	27%	28%	<b>31%+</b>	28%	31%
<b>Wear or use netting</b>	21%	21%	22%	21%	<b>26%+</b>
<b>Other</b>	2%	2%	1%	2%	2%
<b>I don't take precautions</b>	10%	10%	<b>6%-</b>	<b>9%-</b>	<b>7%-</b>

<b>Prefer not to answer</b>	1%	1%	1%	<b>1%-</b>	3%
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Base: all respondents

Table 20b. What do you do to protect yourself and your family from mosquitoes?

PM9	Total	Travelled to another region in Canada	Travelled outside Canada	Living in a rural area	Cats and dogs owners
n= (weighted)	5,006	3,270	1,820	1,422	2,596
n= (unweighted)	5,006	3,347	1,976	1,351	2,580
<b>(NET) AT LEAST ONE</b>	88%	<b>90%+</b>	<b>91%</b>	90%	<b>89%+</b>
<b>Use insect repellent</b>	72%	<b>74%+</b>	<b>75%+</b>	74%	73%
<b>Wear pants</b>	54%	<b>56%+</b>	54%	53%	54%
<b>Wear long-sleeved shirts</b>	53%	<b>54%+</b>	53%	52%	52%
<b>Wear a hat</b>	32%	<b>34%+</b>	33%	34%	<b>31%-</b>
<b>Wear light-coloured clothing</b>	28%	28%	28%	29%	27%
<b>Pull socks over pants</b>	28%	28%	27%	27%	27%
<b>Wear insect-repellent clothing</b>	27%	<b>29%+</b>	28%	27%	27%
<b>Wear or use netting</b>	21%	22%	21%	22%	20%
<b>Other</b>	2%	2%	1%	2%	2%
<b>I don't take precautions</b>	10%	<b>9%-</b>	<b>9%-</b>	<b>9%-</b>	10%
<b>Prefer not to answer</b>	1%	<b>1%-</b>	<b>1%-</b>	1%	<b>1%-</b>

Base: all respondents

The following subgroups were more likely to take at least one precaution to protect themselves and their family from mosquitoes:

- Respondents who identify as South Asian (94%)
- Respondents with a household income of \$100k and more (92%)
- Ontario residents (90%)
- Prairies residents (90%)
- Respondents who identify as women (90%)

### 2.3.11 Protective measures against ticks

Most respondents (83%) said they take at least one precaution to protect themselves and their family from ticks. Just over half reported checking their body for ticks (54%), wearing pants (53%), or walking on cleared paths or trails (51%). Slightly fewer said they wear long-sleeved shirts (44%) or use insect repellent (43%). More than one third indicated that they pull socks over their pants (37%), while close to one-quarter said they take a shower after coming back from outside (28%). One-quarter reported wearing a hat (25%), and one in five said they wear insect-repellent clothing (20%). Fewer respondents reported wearing light-coloured clothing (18%) or taking another precaution (1%). 15% said they do not take precautions, and two percent (2%) preferred not to answer.

**Table 21. What do you do to protect yourself and your family from ticks?**

PM9	Total	Residents of high-risk areas for ticks	Parents of children 0-14	Outdoor enthusiasts	Occupation exposures	Travelled to another region in Canada	Travelled outside Canada	Living in a rural area	Cats and dogs owners
n= (weighted)	5,006	3,500	1,044	3,609	470	3,270	1,820	1,422	2,596
n= (unweighted)	5,006	3,504	1,129	3,644	471	3,347	1,976	1,351	2,580
<b>(NET) AT LEAST ONE</b>	83%	83%	<b>87%+</b>	<b>86%+</b>	84%	<b>85%+</b>	<b>86%+</b>	84%	<b>84%+</b>
<b>Check body for ticks</b>	54%	54%	54%	<b>58%+</b>	<b>48%-</b>	<b>56%+</b>	<b>56%+</b>	<b>58%+</b>	<b>56%+</b>
<b>Wear pants</b>	53%	<b>55%+</b>	<b>50%-</b>	<b>56%+</b>	<b>44%-</b>	<b>56%+</b>	53%	<b>56%+</b>	53%
<b>Walk on cleared paths or trails</b>	51%	52%	49%	<b>53%+</b>	<b>45%-</b>	<b>52%+</b>	50%	52%	51%
<b>Wear long-sleeved shirts</b>	44%	<b>45%+</b>	43%	<b>45%+</b>	39%	<b>45%+</b>	44%	44%	<b>42%-</b>
<b>Use insect repellent</b>	43%	43%	<b>46%+</b>	<b>44%+</b>	<b>37%-</b>	43%	<b>45%+</b>	42%	42%
<b>Pull socks over pants</b>	37%	38%	36%	<b>39%+</b>	<b>31%-</b>	38%	<b>35%-</b>	<b>40%+</b>	37%
<b>Take a shower after coming back from outside</b>	28%	29%	30%	29%	30%	<b>30%+</b>	28%	27%	28%
<b>Wear a hat</b>	25%	25%	24%	<b>26%+</b>	25%	<b>27%+</b>	25%	25%	24%
<b>Wear insect-repellent clothing</b>	20%	20%	22%	20%	<b>24%+</b>	<b>21%+</b>	20%	19%	19%
<b>Wear light-coloured clothing</b>	18%	<b>19%+</b>	16%	18%	18%	18%	18%	18%	18%
<b>Other</b>	1%	1%	1%	1%	2%	1%	1%	2%	1%
<b>I don't take precautions</b>	15%	<b>14%-</b>	<b>12%-</b>	<b>13%-</b>	13%	<b>13%-</b>	<b>13%-</b>	14%	14%

<b>Prefer not to answer</b>	2%	2%	1%-	1%-	3%	2%-	1%-	2%	2%
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Base: all respondents

The following subgroups were more likely to take at least one precaution to protect themselves and their family from ticks:

- Saskatchewan residents (90%)
- Nova Scotia residents (89%)
- Ontario residents (86%)
- Respondents who identify as women (85%)
- Respondents with a household income between \$60k and \$100k (85%)
- Respondents with a household income of \$100k and more (85%)
- Non-racialized respondents (83%)

### 2.3.12 Types of insect repellents used

Among respondents who use insect repellent against mosquitoes or ticks, more than three quarters (76%) said they use repellents that can be applied directly to the body (chemical free/natural such as essential oils, DEET or Icaridin).

A little over three out of five reported using DEET-based repellents (61%). Environmental or non-applied options were also commonly mentioned, including candles or torches such as citronella (28%), chemical-free or natural products such as essential oils (23%), and coils (22%). Smaller proportions said they use wearable repellent devices such as wristbands, stickers, or clip-on foggers (16%), nets or netting (14%), smoke repellents (12%), sonic, heat-dispersed, or light-bulb repellents (10%), or fans (6%). Few respondents reported using Icaridin-based repellents (3%). 5% mentioned another type of repellent, while 8% said they did not know.

Table 22a. Which type of insect repellent do you use?

PM10	Total	Residents of high-risk areas for ticks	Parents of children 0-14	Outdoor enthusiasts	Occupation exposures
n= (weighted)	3,730	2,579	828	2,803	326
n= (unweighted)	3,733	2,580	882	2,830	322
<b>(NET) Repellents that can be applied to the body</b>	76%	75%-	77%	79%+	78%
<b>DEET</b>	61%	58%-	56%-	64%+	57%
<b>Candles/torches (e.g., citronella)</b>	28%	28%	31%	30%+	30%
<b>Chemical free/natural</b>	23%	24%+	29%+	24%+	29%+

such as essential oils					
Coils	22%	20%-	23%	24%+	26%
Wearable repellent devices (e.g., wristbands, stickers, clip-on foggers)	16%	17%	24%+	17%	21%+
Nets/netting	14%	14%	15%	14%	18%+
Smoke repellent	12%	11%	16%+	12%	21%+
Sonic, heat dispersed, or light bulb repellents	10%	10%	15%+	11%	18%+
Fans	6%	7%+	7%	6%	12%+
Icaridin	3%	4%	6%+	4%	9%+
Other	5%	5%	3%-	5%	3%
I don't know	8%	9%+	7%	7%-	3%-

Base: respondents who use insect repellent against mosquitoes or ticks

Table 22b. Which type of insect repellent do you use?

PM10	Total	Travelled to another region in Canada	Travelled outside Canada	Living in a rural area	Cats and dogs owners
n= (weighted)	3,730	2,494	1,404	1,087	1,959
n= (unweighted)	3,733	2,543	1,520	1,035	1,937
<b>(NET) Repellents that can be applied to the body</b>	76%	78%+	77%	82%+	79%+
DEET	61%	62%	62%	67%+	63%+
Candles/torches (e.g., citronella)	28%	29%	29%	29%	31%+
Chemical free/natural such as essential oils	23%	25%+	23%	22%	25%+
Coils	22%	23%+	22%	26%+	23%
Wearable repellent devices (e.g., wristbands, stickers, clip-on foggers)	16%	17%+	17%	17%	18%

<b>Nets/netting</b>	14%	<b>15%+</b>	14%	<b>16%+</b>	14%
<b>Smoke repellent</b>	12%	<b>14%+</b>	12%	<b>14%+</b>	<b>14%+</b>
<b>Sonic, heat dispersed, or light bulb repellents</b>	10%	10%	11%	11%	<b>12%+</b>
<b>Fans</b>	6%	6%	7%	5%	6%
<b>Icaridin</b>	3%	4%	4%	4%	4%
<b>Other</b>	5%	5%	4%	5%	5%
<b>I don't know</b>	8%	<b>7%-</b>	7%	<b>6%-</b>	<b>6%-</b>

*Base: respondents who use insect repellent against mosquitoes or ticks*

The following subgroups were more likely to have mentioned using repellent against mosquitoes or ticks that can be applied directly to the body:

- Respondents living in rural areas (85%)
- Respondents aged 55 years old or older (82%)
- Respondents aged between 35 and 54 years old (81%)
- Alberta residents (81%)
- Respondents with a household income of \$100k and more (81%)
- Respondents living in small population centres (80%)
- French-speaking respondents (80%)
- Non-racialized respondents (80%)

### **2.3.13 Places in the body to apply insect repellent**

Among respondents who use insect repellent that can be applied to the body, most reported applying it to their arms (88%), legs (85%), and neck (80%). About two thirds said they apply repellent to their hands (64%) or clothing (62%). Just over half reported applying it to their feet (52%), while just under half said they apply it to their face (48%). One third reported applying repellent to their hair (33%). Very few said they apply it to all exposed areas or all over the body (1%).

**Table 23. Where do you usually apply insect repellent?**

<b>PM11</b>	<b>Total</b>	<b>Residents of high-risk areas for ticks</b>	<b>Parents of children 0-14</b>	<b>Outdoor enthusiasts</b>	<b>Occupation exposures</b>	<b>Travelled to another region in Canada</b>	<b>Travelled outside Canada</b>	<b>Living in a rural area</b>	<b>Cats and dogs owners</b>
n= (weighted)	2,839	1,934	636	2,217	253	1,944	1,088	889	1,548
n= (unweighted)	2,877	1,965	680	2,268	245	1,995	1,199	851	1,537
<b>Arms</b>	88%	88%	<b>85%-</b>	88%	84%	88%	88%	86%	87%
<b>Legs</b>	85%	85%	86%	85%	81%	85%	85%	<b>81%-</b>	85%
<b>Neck</b>	80%	79%	77%	<b>81%+</b>	75%	81%	79%	81%	79%

<b>Hands</b>	64%	66%+	59%-	63%-	68%	64%	65%	61%-	63%
<b>Clothing</b>	62%	59%-	70%+	63%+	63%	64%+	57%-	69%+	67%+
<b>Feet</b>	52%	52%	62%+	52%	54%	53%	53%	50%	56%+
<b>Face</b>	48%	48%	43%-	48%	48%	48%	49%	50%	48%
<b>Hair</b>	33%	31%-	36%	34%+	39%	34%	30%-	40%+	37%+
<b>All exposed areas / All over</b>	1%	1%	1%	2%	1%	1%	2%	1%	1%

Base: respondents who use insect repellent that can be applied to the body

No significant differences between the different subcategories are observed for this question.

### 2.3.14 Reasons not to use insect repellent

Among respondents who mentioned they do not use insect repellent, the most cited reason was concern about chemicals (35%). About one in five said they do not need it (22%) or dislike the smell (22%), while just under one in five said they do not think it is effective (19%). Smaller proportions said insect repellent is too expensive (12%), that they are allergic to it (6%), or that it damages clothing (6%). Very few respondents said they do not go outside often or spend little time outdoors (1%), or that they did not think of it or forgot (1%). 2% mentioned another reason, while 10% preferred not to answer.

Table 24. Why don't you use insect repellent?

<b>PM12</b>	<b>Total</b>	<b>Residents of high-risk areas for ticks</b>	<b>Parents of children 0-14</b>	<b>Outdoor enthusiasts</b>	<b>Occupation exposures</b>	<b>Travelled to another region in Canada</b>	<b>Travelled outside Canada</b>	<b>Living in a rural area</b>	<b>Cats and dogs owners</b>
n= (weighted)	1,276	921	216	806	144	776	415	335	638
n= (unweighted)	1,273	924	247	814	149	804	456	316	643
<b>Contains chemicals</b>	35%	36%	39%	40%+	37%	35%	36%	33%	38%
<b>Don't need it</b>	22%	22%	18%	22%	17%	21%	19%	22%	22%
<b>Smell</b>	22%	23%	22%	22%	25%	23%	27%+	20%	24%
<b>Don't think it's effective</b>	19%	18%	20%	19%	18%	22%+	21%	25%+	22%
<b>Too expensive</b>	12%	13%	11%	13%	12%	12%	12%	13%	11%
<b>Allergic</b>	6%	7%+	6%	6%	11%+	7%	6%	6%	7%
<b>Damages clothing</b>	6%	6%	8%	5%	6%	6%	6%	3%-	8%+
<b>I do use it</b>	1%	1%	1%	1%	1%	1%	2%	1%	2%
<b>I don't go outside often / don't spend time outdoors</b>	1%	1%	0%-	0%	0%-	1%	1%	1%	1%

<b>I didn't think of it / Forgot</b>	1%	1%	2%	1%	1%	0%	1%	1%	1%
<b>Other</b>	2%	2%	2%	2%	2%	1%-	1%	2%	1%
<b>Prefer not to answer</b>	10%	9%	9%	6%-	6%	9%	8%	8%	7%-

Base: respondents who don't use insect repellent

No significant differences between the different subcategories are observed for this question.

### 2.3.15 Reasons to not take steps to prevent mosquito bites

Among respondents who do not take precautions for mosquito bites, the most cited reason was the perception that there are not many mosquitoes where they live (21%). Smaller proportions said they do not think mosquito-borne diseases are a serious problem (10%) or do not think they will get bitten (9%). 5% said cost was a barrier, while another 5% indicated that they do not have enough information. 4% said there is too much information to sort through, and 5% cited another reason. In contrast, just over half (51%) said there was no particular reason or that they simply had not taken steps to prevent mosquito bites. 3% preferred not to answer.

Table 25. Why haven't you taken steps to prevent mosquito bites?

<b>PM13</b>	<b>Total</b>	<b>Residents of high-risk areas for ticks</b>	<b>Parents of children 0-14</b>	<b>Outdoor enthusiasts</b>	<b>Occupation exposures</b>	<b>Travelled to another region in Canada</b>	<b>Travelled outside Canada</b>	<b>Living in a rural area</b>	<b>Cats and dogs owners</b>
n= (weighted)	515	357	65	312	32	291	157	125	253
n= (unweighted)	491	338	71	297	30	288	161	118	237
<b>I don't think there are many mosquitoes where I live</b>	21%	22%	12%	22%	18%	19%	20%	16%	18%
<b>I don't think mosquito-borne diseases are a serious problem</b>	10%	10%	11%	13%+	9%	11%	10%	9%	9%
<b>I don't think I'll get bitten</b>	9%	10%	6%	8%	6%	8%	11%	5%-	7%
<b>It costs too much</b>	5%	5%	7%	6%	10%	3%	5%	7%	3%
<b>I don't have enough information</b>	5%	5%	8%	3%	2%	5%	2%-	5%	4%
<b>There's too much</b>	4%	4%	3%	3%	8%	3%	4%	4%	4%

<b>information to sort through</b>									
<b>Other</b>	5%	6%	5%	6%	6%	6%	7%	5%	4%
<b>No particular reason / I just haven't</b>	51%	50%	42%	51%	43%	51%	49%	52%	56%
<b>Prefer not to answer</b>	3%	3%	9%	<b>1%-</b>	7%	3%	2%	4%	2%

Base: respondents who don't take precautions for mosquito bites

No significant differences between the different subcategories are observed for this question.

### 2.3.16 Reasons to not take steps to prevent tick bites

Among respondents who do not take precautions for tick bites, the most cited reason was the perception that there are not many ticks where they live (28%). Smaller proportions said they do not think they will get bitten (16%) or that they do not have enough information (10%). 4% said they do not think tick-borne diseases are a serious problem. 3% cited cost as a barrier, while 2% said there is too much information to sort through. 5% cited another reason. In contrast, just under half (47%) said there was no reason or that they simply had not taken steps to prevent tick bites. 2% preferred not to answer.

Table 26. Why haven't you taken steps to prevent tick bites?

<b>PM13</b>	<b>Total</b>	<b>Residents of high-risk areas for ticks</b>	<b>Parents of children 0-14</b>	<b>Outdoor enthusiasts</b>	<b>Occupation exposures</b>	<b>Travelled to another region in Canada</b>	<b>Travelled outside Canada</b>	<b>Living in a rural area</b>	<b>Cats and dogs owners</b>
n= (weighted)	760	502	125	474	59	437	245	196	367
n= (unweighted)	704	461	130	435	52	414	246	180	335
<b>I don't think there are many ticks where I live</b>	28%	26%	24%	30%	20%	<b>32%+</b>	26%	28%	28%
<b>I don't think I'll get bitten</b>	16%	16%	16%	17%	20%	17%	14%	<b>10%-</b>	17%
<b>I don't have enough information</b>	10%	11%	<b>18%+</b>	9%	<b>2%-</b>	9%	11%	<b>6%-</b>	10%
<b>I don't think tick-borne diseases are a serious problem</b>	4%	5%	3%	4%	5%	4%	5%	4%	4%
<b>It costs too much</b>	3%	3%	3%	4%	9%	2%	4%	3%	2%
<b>There's too much</b>	2%	2%	1%	2%	3%	1%	2%	<b>1%-</b>	2%

<b>information to sort through</b>									
<b>Other</b>	5%	4%	4%	4%	2%	5%	3%	7%	4%
<b>No particular reason / I just haven't</b>	47%	48%	<b>36%-</b>	47%	48%	45%	51%	49%	47%
<b>Prefer not to answer</b>	2%	2%	5%	<b>1%-</b>	2%	2%	1%	3%	1%

Base: respondents who don't take precautions for tick bites

No significant differences between the different subcategories are observed for this question.

### 2.3.17 Awareness of mosquito risks when travelling within Canada

Among respondents who travelled within or outside their province (still within Canada) in the past 12 months, close to three out of five said they were aware of mosquitoes and mosquito-borne disease risks when travelling (59%). This included 14% who said they were very aware and 45% who said they were moderately aware. In contrast, two out of five respondents said they were not aware of these risks when travelling (40%), including 33% who said they were not very aware and 8% who said they were not at all aware. 1% preferred not to answer.

Table 27a. How aware are you of mosquitoes and mosquito-borne disease risks when travelling outside your area (city/ town/province)?

PM14	Total	Residents of high-risk areas for ticks	Parents of children 0-14	Outdoor enthusiasts	Occupation exposures
n= (weighted)	3,270	2,215	763	2,535	354
n= (unweighted)	3,347	2,275	845	2,608	363
<b>(NET) AWARE</b>	59%	60%	<b>63%+</b>	<b>61%+</b>	<b>71%+</b>
<b>Very aware</b>	14%	<b>15%+</b>	<b>18%+</b>	15%	<b>25%+</b>
<b>Moderately aware</b>	45%	44%	45%	<b>46%+</b>	47%
<b>(NET) NOT AWARE</b>	40%	40%	<b>36%-</b>	<b>38%-</b>	<b>28%-</b>
<b>Not very aware</b>	33%	32%	31%	32%	<b>25%-</b>
<b>Not at all aware</b>	8%	8%	<b>6%-</b>	<b>7%-</b>	<b>3%-</b>
<b>Prefer not to answer</b>	1%	1%	0%	<b>0%-</b>	1%

Base: respondents who travelled within or outside of the province (still within Canada) in the past 12 months

Table 27b. How aware are you of mosquitoes and mosquito-borne disease risks when travelling outside your area (city/ town/province)?

PM14	Total	Travelled to another region in Canada	Travelled outside Canada	Living in a rural area	Cats and dogs owners
n= (weighted)	3,270	3,270	1,133	956	1,767
n= (unweighted)	3,347	3,347	1,265	900	1,811
<b>(NET) AWARE</b>	59%	59%	<b>63%+</b>	61%	<b>61%+</b>
<b>Very aware</b>	14%	14%	15%	14%	15%
<b>Moderately aware</b>	45%	45%	<b>48%+</b>	47%	<b>46%+</b>
<b>(NET) NOT AWARE</b>	40%	40%	<b>37%-</b>	38%	<b>38%-</b>
<b>Not very aware</b>	33%	33%	30%	31%	31%
<b>Not at all aware</b>	8%	8%	7%	<b>6%-</b>	7%
<b>Prefer not to answer</b>	1%	1%	<b>0%-</b>	1%	1%

Base: respondents who travelled within or outside of the province (still within Canada) in the past 12 months

The following subgroups were more likely to say they were aware of mosquitoes and mosquito-borne diseases risks when travelling within or outside their province (still within Canada) in the past 12 months:

- Respondents who mostly speak French at home (67%)
- Quebec residents (66%)
- Respondents living in small population centres (63%)
- Respondents aged 55 years old or older (62%)

### 2.3.18 Awareness of mosquito risks when travelling outside Canada

Among respondents who travelled outside of Canada in the past 12 months, nearly two thirds said they were aware of mosquitoes and mosquito-borne disease risks when travelling (65%). This included 21% who said they were very aware and 44% who said they were moderately aware. In contrast, about one third said they were not aware of these risks (34%), including 27% who said they were not very aware and 7% who said they were not at all aware.

Table 28. How aware are you of mosquitoes and mosquito-borne disease risks when travelling outside Canada?

PM15	Total	Residents of high-risk areas	Parents	Outdoor enthusiasts	Occupation exposures	Travelled to another region in Canada	Travelled outside Canada	Living in a rural area	Cats and dogs owners
n= (weighted)	1,820	1,351	404	1,392	191	1,133	1,820	389	932
n= (unweighted)	1,976	1,460	472	1,525	209	1,265	1,976	404	1,016
<b>(NET) AWARE</b>	65%	65%	<b>71%+</b>	<b>67%+</b>	<b>75%+</b>	65%	65%	68%	<b>70%+</b>
<b>Very aware</b>	21%	21%	<b>27%+</b>	<b>23%+</b>	<b>33%+</b>	22%	21%	19%	23%

<b>Moderately aware</b>	44%	44%	44%	45%	42%	43%	44%	<b>49%+</b>	<b>47%+</b>
<b>(NET) NOT AWARE</b>	34%	35%	<b>29%-</b>	<b>32%-</b>	<b>25%-</b>	34%	34%	32%	<b>30%-</b>
<b>Not very aware</b>	27%	27%	<b>22%-</b>	26%	<b>20%-</b>	27%	27%	26%	<b>24%-</b>
<b>Not at all aware</b>	7%	8%	7%	<b>7%-</b>	5%	7%	7%	6%	<b>5%-</b>

Base: respondents who travelled outside of Canada in the past 12 months

The following subgroups were more likely to said they were aware of mosquitoes and mosquito-borne diseases risks when travelling outside of Canada:

- Respondents who mostly speak French at home (72%)

### 2.3.19 Mosquito and tick reduction measures

Under half of respondents (46%) mentioned that they have taken steps to reduce mosquitoes where they live or spend time. Regarding ticks, close to one quarter of respondents (26%) said they had taken steps to reduce them in the areas where they live or spend time.

Table 29a. Have you taken steps to reduce... **SUMMARY % YES**

<b>PM16</b>	<b>Total</b>	<b>Residents of high-risk areas for ticks</b>	<b>Parents of children 0-14</b>	<b>Outdoor enthusiasts</b>	<b>Occupation exposures</b>
n= (weighted)	5,006	3,500	1,044	3,609	470
n= (unweighted)	5,006	3,504	1,129	3,644	471
<b>mosquitoes where you live or spend time?</b>	46%	45%	<b>49%+</b>	<b>50%+</b>	<b>56%+</b>
<b>ticks where you live or spend time?</b>	26%	<b>28%+</b>	<b>33%+</b>	<b>29%+</b>	<b>44%+</b>

Base: all respondents

Table 29b. Have you taken steps to reduce... **SUMMARY % YES**

<b>PM16</b>	<b>Total</b>	<b>Travelled to another region in Canada</b>	<b>Travelled outside Canada</b>	<b>Living in a Rural area</b>	<b>Cats and dogs owners</b>
n= (weighted)	5,006	3,270	1,820	1,422	2,596
n= (unweighted)	5,006	3,347	1,976	1,351	2,580
<b>mosquitoes where you live or spend time?</b>	46%	<b>49%+</b>	47%	<b>52%+</b>	<b>48%+</b>
<b>ticks where you live or spend time?</b>	26%	<b>29%+</b>	<b>29%+</b>	<b>29%+</b>	<b>30%+</b>

Base: all respondents

The following subgroups were more likely to have mentioned that they have taken steps to reduce mosquitoes where they live or spend time:

- Respondents living in a rural area (55%)
- Respondents living in small population centres (51%)
- Prairies residents (50%)
- Ontario residents (49%)
- Respondents with a household income of \$100k and more (49%)
- Respondents aged 55 years old or older (48%)
- Respondents who mostly speak English at home (47%)

The following subgroups were more likely to have mentioned that they have taken steps to reduce ticks where they live or spend time:

- Respondents living in a rural area (34%)
- Respondents who identify as South Asian (33%)
- Ontario residents (31%)
- Respondents in the workforce (29%)
- Respondents who mostly speak English at home (28%)

### 2.3.20 Measures taken to reduce mosquitoes

Among respondents who took steps to reduce mosquitoes where they live or spend time, the most reported action was removing standing water (80%). Seven in ten said they fix or replace torn screens in doors and windows (70%), while just over half reported keeping gutters clean (52%). Smaller proportions said they replace water in bird baths (37%). Very few respondents reported spraying their lawn with mosquito repellent (1%), keeping grass cut short or using repellent plants (1%), using mosquito dunks, traps, citronella candles, or bug zappers (1%), or taking another action (1%). 1% said they do nothing.

Table 30. What do you do to reduce mosquitoes where you live or spend time?

PM17	Total	Residents of high-risk areas for ticks	Parents of children 0-14	Outdoor enthusiasts	Occupation exposures	Travelled to another region in Canada	Travelled outside Canada	Living in a rural area	Cats and dogs owners
n= (weighted)	2,280	1,580	516	1,799	266	1,592	859	744	1,248
n= (unweighted)	2,293	1,589	574	1,821	277	1,621	954	695	1,248
<b>Remove standing water</b>	80%	<b>83%+</b>	<b>75%-</b>	<b>82%+</b>	<b>68%-</b>	80%	81%	78%	80%
<b>Fix or replace torn screens in doors and windows</b>	70%	69%	67%	<b>72%+</b>	<b>60%-</b>	70%	69%	71%	70%

Keep gutters clean	52%	54%+	51%	53%+	57%	54%+	53%	51%	54%
Replace water in bird baths	37%	39%+	34%	38%	38%	39%+	38%	37%	42%+
Spray lawn with mosquito repellent	1%	1%-	1%-	1%	2%	1%	2%	3%+	1%
Keep grass cut short & use plants that are repellent	1%	1%	0%-	1%	1%	1%	1%	2%	1%
Use mosquito dunks/traps / citronella candles / bug/mosquito zapper/light	1%	1%	2%	1%	2%	1%	1%	1%	1%
Other	1%	1%	1%	1%	1%	1%	1%	1%	1%-
None / Nothing	1%	1%	1%	1%	1%	1%	1%	1%	0%

Base: respondents who took steps to reduce mosquitoes where they live or spend time

No significant differences between the different subcategories are observed for this question.

### 2.3.21 Reasons to not take steps to reduce mosquitoes

Among respondents who did not take steps to reduce mosquitoes where they live or spend time, the most cited reasons were a lack of information on what to do (30%) and not knowing it was possible (28%). One quarter said mosquitoes are not a serious issue (25%). Smaller proportions said they do not have enough time (7%) or that it is too expensive (6%). Very few cited living in a condo or apartment building (2%), said it is not an issue where they live (1%), or that they do not go outside often or spend time outdoors when mosquitoes are active (1%). Very few (1%) cited another reason. In addition, about one in five said there was no need to take steps to reduce mosquitoes (21%). 3% preferred not to answer.

Table 31a. Why haven't you taken steps to reduce mosquitoes where you live or spend time?

PM18	Total	Residents of high-risk areas for ticks	Parents of children 0-14	Outdoor enthusiasts	Occupation exposures
n= (weighted)	2,442	1,704	479	1,666	187
n= (unweighted)	2,454	1,718	505	1,683	176
Lack of information on what to do	30%	30%	34%	33%+	34%
I didn't know it was possible	28%	28%	32%+	31%+	25%

Mosquitoes are not a serious issue	25%	24%	26%	26%	23%
I don't have enough time	7%	8%+	10%+	7%	11%
It's too expensive	6%	6%	8%	7%	12%+
I live in a condo/apartment building	2%	2%	1%	1%	2%
It's not an issue where I live	1%	1%	1%	1%	2%
I don't go outside often / don't spend time outdoors when they are active	1%	1%	1%	1%	1%
Other	1%	1%	1%	2%+	2%
No need	21%	21%	15%-	19%-	19%
Prefer not to answer	3%	3%	2%	2%-	1%

Base: respondents who did not take steps to reduce mosquitoes where they live or spend time

Table 31b. Why haven't you taken steps to reduce mosquitoes where you live or spend time?

PM18	Total	Travelled to another region in Canada	Travelled outside Canada	Living in a rural area	Cats and dogs owners
n= (weighted)	2,442	1,508	859	625	1,219
n= (unweighted)	2,454	1,571	931	605	1,212
Lack of information on what to do	30%	33%+	33%+	28%	32%+
I didn't know it was possible	28%	30%+	30%	26%	31%+
Mosquitoes are not a serious issue	25%	26%	25%	29%+	23%
I don't have enough time	7%	8%+	7%	7%	8%
It's too expensive	6%	7%	6%	11%+	7%
I live in a condo/apartment building	2%	1%	2%	0%-	1%-
It's not an issue where I live	1%	1%+	1%	1%	1%
I don't go outside often / don't	1%	1%	0%-	1%	1%

<b>spend time outdoors when they are active</b>					
<b>Other</b>	1%	1%	1%	2%	1%
<b>No need</b>	21%	<b>19%-</b>	19%	<b>17%-</b>	21%
<b>Prefer not to answer</b>	3%	<b>2%-</b>	2%	3%	<b>2%-</b>

Base: respondents who did not take steps to reduce mosquitoes where they live or spend time

No significant differences between the different subcategories are observed for this question.

### 2.3.22 Measures taken to reduce ticks

Among respondents who report taking steps to reduce ticks where they live or spend time, environmental maintenance measures are most common. Nearly three quarters say they remove piles of leaves, tree brush, long grass, or weeds (74%), and a similar proportion report mowing the lawn frequently (71%). About half indicate they prune shrubs and trees (49%), while close to one third used wood chips or mulch for surfaces or borders (38%). Very few respondents mention using pest control measures (1%) or having chickens (1%).

Table 32. What do you do to reduce ticks where you live or spend time?

<b>PM19</b>	<b>Total</b>	<b>Residents of high-risk areas for ticks</b>	<b>Parents of children 0-14</b>	<b>Outdoor enthusiasts</b>	<b>Occupation exposures</b>	<b>Travelled to another region in Canada</b>	<b>Travelled outside Canada</b>	<b>Living in a rural area</b>	<b>Cats and dogs owners</b>
n= (weighted)	1,325	964	346	1,043	205	945	523	418	775
n= (unweighted)	1,336	970	394	1,065	222	969	568	386	786
<b>Remove piles of leaves, tree brush, long grass, and weeds</b>	74%	74%	71%	<b>75%+</b>	<b>61%-</b>	74%	75%	71%	73%
<b>Mow the lawn frequently</b>	71%	71%	70%	<b>73%+</b>	<b>58%-</b>	71%	<b>67%-</b>	<b>82%+</b>	72%
<b>Prune shrubs and trees</b>	49%	50%	47%	<b>52%+</b>	46%	49%	47%	46%	49%
<b>Use wood chips or mulch surfaces and/or borders</b>	38%	39%	39%	39%	<b>46%+</b>	<b>40%+</b>	37%	<b>33%-</b>	40%
<b>Spray / Pest control</b>	1%	1%	1%	1%	1%	1%	1%	1%	0%
<b>Have chickens</b>	1%	1%	0%	1%	0%	1%	0%	<b>2%+</b>	<b>1%+</b>
<b>Other</b>	2%	2%	1%	2%	2%	2%	2%	1%	2%
<b>None / Nothing</b>	2%	1%	1%	1%	1%	1%	1%	2%	1%

Base: respondents who took steps to reduce ticks where they live or spend time

No significant differences between the different subcategories are observed for this question.

### 2.3.23 Reasons to not take steps to reduce ticks

Among respondents who have not taken steps to reduce ticks where they live or spend time, the most cited barriers relate to awareness and information. About one third say they lack information on what actions to take (34%), while a similar proportion indicate they did not know it was possible to reduce ticks (33%). Attitudinal factors are also evident, with nearly one in five respondents saying ticks are not a serious issue (18%) and just under one quarter reporting that there is no need to act (24%). Practical constraints are mentioned far less frequently, including lack of time (5%) and cost (5%). Very small proportions say it is not an issue where they live (2%) or that they live in a condo or apartment building (1%).

Table 33. Why haven't you taken steps to reduce ticks where you live or spend time?

PM20	Total	Residents of high-risk areas for ticks	Parents of children 0-14	Outdoor enthusiasts	Occupation exposures	Travelled to another region in Canada	Travelled outside Canada	Living in a rural area	Cats and dogs owners
n= (weighted)	3,229	2,196	629	2,311	241	2,058	1,160	891	1,600
n= (unweighted)	3,261	2,224	664	2,340	226	2,134	1,278	863	1,597
<b>Lack of information on what to do</b>	34%	34%	38%	<b>37%+</b>	31%	<b>37%+</b>	36%	32%	34%
<b>I didn't know it was possible</b>	33%	32%	35%	<b>36%+</b>	32%	<b>34%+</b>	35%	34%	<b>36%+</b>
<b>No need</b>	24%	24%	<b>19%-</b>	<b>21%-</b>	21%	<b>21%-</b>	23%	<b>21%-</b>	23%
<b>Ticks are not a serious issue</b>	18%	17%	15%	<b>18%+</b>	21%	18%	19%	19%	17%
<b>I don't have enough time</b>	5%	<b>6%+</b>	<b>8%+</b>	5%	8%	6%	5%	5%	5%
<b>It's too expensive</b>	5%	5%	<b>8%+</b>	5%	<b>13%+</b>	5%	4%	<b>8%+</b>	6%
<b>It's not an issue where I live</b>	2%	<b>1%-</b>	1%	2%	1%	2%	1%	<b>2%+</b>	2%
<b>I live in a condo/apartment building</b>	1%	1%	1%	1%	1%	1%	2%	<b>1%-</b>	1%
<b>Other</b>	2%	2%	2%	2%	2%	2%	2%	2%	2%
<b>Prefer not to answer</b>	2%	3%	2%	<b>2%-</b>	1%	<b>2%-</b>	2%	3%	<b>2%-</b>

Base: respondents who did not take steps to reduce ticks where they live or spend time

No significant differences between the different subcategories are observed for this question.

### 2.3.24 Awareness of vaccines and medications for mosquito-borne diseases

Awareness of preventive options for mosquito-borne diseases is mixed among respondents. Just under half report being aware that vaccines and medications are available for some mosquito-borne diseases (46%). Slightly more than half say they were not aware of this (53%).

Table 34. Are you aware that vaccines and medications are available for some mosquito-borne diseases?

M1	Total	Residents of high-risk areas for ticks	Parents of children 0-14	Outdoor enthusiasts	Occupation exposures	Travelled to another region in Canada	Travelled outside Canada	Living in a rural area	Cats and dogs owners
n= (weighted)	5,006	3,500	1,044	3,609	470	3,270	1,820	1,422	2,596
n= (unweighted)	5,006	3,504	1,129	3,644	471	3,347	1,976	1,351	2,580
<b>Yes</b>	46%	45%	<b>50%+</b>	<b>49%+</b>	<b>51%+</b>	<b>49%+</b>	<b>52%+</b>	46%	<b>48%+</b>
<b>No</b>	53%	54%	<b>49%-</b>	<b>50%-</b>	48%	<b>50%-</b>	<b>47%-</b>	53%	<b>51%-</b>
<b>Prefer not to answer</b>	1%	1%	1%	<b>1%-</b>	0%	<b>1%-</b>	1%	1%	1%

Base: all respondents

The following subgroups were more likely to be aware that vaccines and medications are available for some mosquito-borne diseases:

- Respondents with a household income of \$100k and more (51%)
- Respondents aged 35 to 54 years old (49%)
- Respondents in the workforce (48%)

### 2.3.25 Consideration of vaccines and medications when travelling

When asked about preventive measures while travelling to countries where mosquito-borne diseases are common, more than two thirds of respondents say they would consider vaccines or medications (68%). A small minority indicate they would not (8%), while 14% are unsure. An additional 8% report that they never travel outside of Canada. Prefer not to answer are minimal, accounting for 1% of respondents.

Table 35. Would you consider vaccines and medications when travelling to countries where mosquito-borne diseases are common?

M2	Total	Residents of high-risk areas for ticks	Parents of children 0-14	Outdoor enthusiasts	Occupation exposures	Travelled to another region in Canada	Travelled outside Canada	Living in a rural area	Cats and dogs owners
n= (weighted)	5,006	3,500	1,044	3,609	470	3,270	1,820	1,422	2,596
n= (unweighted)	5,006	3,504	1,129	3,644	471	3,347	1,976	1,351	2,580
<b>Yes</b>	68%	<b>70%+</b>	69%	<b>72%+</b>	64%	<b>72%+</b>	<b>74%+</b>	<b>63%-</b>	69%
<b>No</b>	8%	8%	<b>11%+</b>	<b>8%-</b>	<b>18%+</b>	9%	9%	9%	9%

<b>Not sure</b>	14%	14%	15%	<b>13%-</b>	14%	14%	<b>16%+</b>	15%	13%
<b>I never travel outside of Canada</b>	8%	<b>7%-</b>	<b>4%-</b>	<b>7%-</b>	<b>3%-</b>	<b>6%-</b>	<b>0%-</b>	<b>12%+</b>	9%
<b>Prefer not to answer</b>	1%	1%	1%	<b>0%-</b>	1%	1%	1%	1%	<b>0%-</b>

Base: all respondents

The following subgroups were more likely to consider vaccines and medications when travelling to countries where mosquito-borne diseases are common:

- Respondents with a household income of \$100k and more (76%)
- Respondents living in large urban centres (74%)
- Respondents aged 55 years old and more (72%)
- Respondents who identify as women (70%)
- Respondents who mostly speak English at home (70%)

### 2.3.26 Perceived risk of mosquito-borne diseases in different contexts

Nearly three quarters of respondents believe they are at risk (high or medium) when travelling to other countries (74%). Just over half feel at risk (high or medium) when spending time outdoors, such as walking, golfing, or hiking (56%). By contrast, perceived high or medium risk is lower during routine daily activities, with just over one in five respondents indicating they feel at risk during regular day-to-day activities such as running errands (22%).

Table 36. Do you believe you are at risk of mosquito-borne diseases... **SUMMARY % AT RISK (high or medium risk)**

<b>M3</b>	<b>Total</b>	<b>Residents of high-risk areas for ticks</b>	<b>Parents of children 0-14</b>	<b>Outdoor enthusiasts</b>	<b>Occupation exposures</b>	<b>Travelled to another region in Canada</b>	<b>Travelled outside Canada</b>	<b>Living in a rural area</b>	<b>Cats and dogs owners</b>
n= (weighted)	5,006	3,500	1,044	3,609	470	3,270	1,820	1,422	2,596
n= (unweighted)	5,006	3,504	1,129	3,644	471	3,347	1,976	1,351	2,580
<b>... when you travel to other countries?</b>	74%	74%	<b>78%+</b>	<b>77%+</b>	76%	<b>77%+</b>	76%	73%	<b>77%+</b>
<b>... when you're outdoors, such as walking / golfing / hiking?</b>	56%	<b>58%+</b>	59%	57%	58%	<b>58%+</b>	58%	<b>53%-</b>	<b>58%+</b>

...during your regular day-to-day activities, such as running errands?	22%	23%+	26%+	22%	37%+	23%	24%+	22%	23%
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Base: all respondents

The following subgroups were more likely to believe they are at high or medium risk of mosquito-borne diseases when they travel to other countries:

- Newfoundland residents (86%)
- Respondents with a household income of \$100k and more (79%)
- Respondents living in large urban centres (77%)
- Respondents aged 18 to 34 years old (77%)
- Respondents in the workforce (77%)

The following subgroups were more likely to believe they are at high or medium risk of mosquito-borne diseases when they are outdoors:

- Ontario residents (63%)
- Racialized respondents (61%)
- Respondents living in large urban centres (59%)
- Respondents aged 18 to 34 years old (59%)
- Respondents who identify as women (58%)
- Respondents who mostly speak English at home (57%)

The following subgroups were more likely to believe they are at high or medium risk of mosquito-borne diseases during their regular day-to-day activities:

- Racialized respondents (31%)
- Respondents aged between 18 to 34 years old (27%)
- Respondents with a household income of less than \$40k (26%)
- Ontario residents (25%)
- Respondents who identify as men (25%)
- Respondents in the workforce (24%)
- Respondents who mostly speak English at home (23%)

### **2.3.27 Concern about illness from mosquito bites in Canada**

Concern about becoming sick after a mosquito bite in Canada remains low among respondents. 22% report being concerned overall, including 5% who are very concerned and 18% who are somewhat concerned. In contrast, three quarters of respondents indicate they are not concerned (75%), with 46% saying they are not very concerned and 29% not at all concerned.

Table 37. When you are bitten by a mosquito in Canada, how concerned are you about getting sick?

M4	Total	Residents of high-risk areas for ticks	Parents of children 0-14	Outdoor enthusiasts	Occupation exposures	Travelled to another region in Canada	Travelled outside Canada	Living in a rural area	Cats and dogs owners
n= (weighted)	5,006	3,500	1,044	3,609	470	3,270	1,820	1,422	2,596
n= (unweighted)	5,006	3,504	1,129	3,644	471	3,347	1,976	1,351	2,580
<b>(NET) CONCERNED</b>	22%	<b>24%+</b>	<b>26%+</b>	<b>21%-</b>	<b>35%+</b>	23%	23%	<b>18%-</b>	22%
<b>Very concerned</b>	5%	5%	<b>8%+</b>	4%	<b>12%+</b>	<b>5%</b>	5%	<b>3%-</b>	5%
<b>Somewhat concerned</b>	18%	<b>19%+</b>	18%	<b>16%-</b>	<b>23%+</b>	18%	18%	<b>15%-</b>	17%
<b>(NET) NOT CONCERNED</b>	75%	<b>73%-</b>	73%	<b>78%+</b>	<b>62%-</b>	76%	75%	<b>80%+</b>	76%
<b>Not very concerned</b>	46%	46%	<b>41%-</b>	<b>47%+</b>	<b>39%-</b>	46%	47%	45%	45%
<b>Not at all concerned</b>	29%	<b>27%-</b>	31%	<b>30%+</b>	<b>23%-</b>	29%	28%	<b>34%+</b>	<b>31%+</b>
<b>I don't know/ Prefer not to answer</b>	3%	3%	<b>1%-</b>	<b>2%-</b>	3%	<b>2%-</b>	<b>2%-</b>	2%	<b>2%-</b>

Base: all respondents

The following subgroups were more likely to be very or somewhat concerned about being bitten by a mosquito in Canada:

- Racialized respondents (37%)
- Allophone respondents (31%) and respondents who mostly speak English at home (24%)
- Respondents aged between 18 to 34 years old (30%)
- Ontario residents (29%)
- Respondents with a household income of less than \$40k (27%)
- Respondents who live in large urban centre (24%)
- Respondents in the workforce (24%)

### 2.3.28 Concern about illness from mosquito bites outside Canada

When asked about their level of concern about getting sick after being bitten by a mosquito outside of Canada, most respondents express some level of concern (58%). This includes 18% who say they are very concerned and four in ten who report being somewhat concerned (40%). Just over one quarter of respondents indicate they are not concerned (27%), including 22% who are not very concerned and 6%

who are not at all concerned. A notable minority of respondents report that they do not know or preferred not to answer (15%).

**Table 38. When you are bitten by a mosquito outside of Canada, how concerned are you about getting sick?**

M5	Total	Residents of high-risk areas for ticks	Parents of children 0-14	Outdoor enthusiasts	Occupation exposures	Travelled to another region in Canada	Travelled outside Canada	Living in a rural area	Cats and dogs owners
n= (weighted)	5,006	3,500	1,044	3,609	470	3,270	1,820	1,422	2,596
n= (unweighted)	5,006	3,504	1,129	3,644	471	3,347	1,976	1,351	2,580
<b>(NET) CONCERNED</b>	58%	58%	59%	<b>59%+</b>	62%	<b>59%+</b>	59%	<b>55%-</b>	57%
<b>Very concerned</b>	18%	18%	19%	18%	<b>26%+</b>	18%	<b>15%-</b>	<b>16%-</b>	18%
<b>Somewhat concerned</b>	40%	40%	40%	<b>41%+</b>	36%	41%	<b>43%+</b>	39%	39%
<b>(NET) NOT CONCERNED</b>	27%	<b>28%+</b>	<b>32%+</b>	28%	30%	<b>29%+</b>	<b>36%+</b>	28%	<b>29%+</b>
<b>Not very concerned</b>	22%	<b>22%+</b>	<b>25%+</b>	22%	22%	<b>23%+</b>	<b>29%+</b>	21%	23%
<b>Not at all concerned</b>	6%	6%	7%	6%	<b>8%+</b>	6%	<b>7%+</b>	<b>7%+</b>	6%
<b>I don't know / Prefer not to answer</b>	15%	<b>13%-</b>	<b>9%-</b>	<b>13%-</b>	<b>7%-</b>	<b>12%-</b>	<b>5%-</b>	<b>18%+</b>	14%

Base: all respondents

The following subgroups were more likely to be very or somewhat concerned about being bitten by a mosquito outside of Canada:

- Allophone respondents (69%) and respondents who mostly speak English at home (60%)
- Racialized respondents (67%)
- Alberta and Ontario residents (62%)
- Respondents living in large urban centres (61%)
- Respondents who identify as women (60%)

## 2.4 Workplace exposure and information

### 2.4.1 Employer guidance on outdoor exposure prevention

Among respondents whose job requires them to spend most or all of their working hours outdoors, just over one third report that their employer has provided information or training on steps to avoid mosquito

bites (35%). Fewer say they have received similar information or training related to tick bites, at just under three in ten (29%).

**Table 39. You mentioned that your job requires you to spend most or all of your working hours outdoors. Has your employer provided any information or training on the steps to take to avoid...  
SUMMARY % YES**

<b>WE1</b>	<b>Total</b>	<b>Residents of high-risk areas for ticks</b>	<b>Parents of children 0-14</b>	<b>Outdoor enthusiasts</b>	<b>Occupation exposures</b>	<b>Travelled to another region in Canada</b>	<b>Travelled outside Canada</b>	<b>Living in a rural area</b>	<b>Cats and dogs owners</b>
n= (weighted)	470	317	181	381	470	354	191	168	318
n= (unweighted)	471	326	204	378	471	363	209	147	329
<b>Mosquito bites</b>	35%	36%	<b>47%+</b>	37%	35%	37%	36%	33%	<b>40%+</b>
<b>Tick bites</b>	29%	30%	<b>40%+</b>	<b>31%+</b>	29%	31%	32%	27%	<b>34%+</b>

*Base: respondents who spend most or all of their working hours outdoors*

The following subgroups were more likely to have mentioned that their employer has provided information or training on steps to avoid mosquito bites:

- Respondents aged between 18 to 34 years old (45%)
- Ontario residents (43%)
- Respondents with a household income of \$100k and more (42%)
- Respondents living in large urban centres (40%)
- Respondents who mostly speak English at home (39%)

The following subgroups were more likely to have mentioned that their employer has provided information or training on steps to avoid tick bites:

- Ontario residents (41%)
- Respondents who mostly speak English at home (32%)

#### **2.4.2 Employer-provided protective equipment**

Among respondents who spend most or all of their working hours outdoors, fewer than four in ten report that their employer provides personal protective equipment such as insect repellents, insecticides, or protective clothing (38%). A clear majority indicate that their employer does not provide such equipment (58%).

**Table 40. Does your employer provide any personal protective equipment, such as insect repellents, insecticides, or protective clothing?**

<b>WE2</b>	<b>Total</b>	<b>Residents of high-</b>	<b>Parents of</b>	<b>Outdoor enthusiasts</b>	<b>Occupation exposures</b>	<b>Travelled to another</b>	<b>Travelled outside Canada</b>	<b>Living in a</b>	<b>Cats and</b>

		risk areas for ticks	children 0-14			region in Canada		rural area	dogs owners
n= (weighted)	470	317	181	381	470	354	191	168	318
n= (unweighted)	471	326	204	378	471	363	209	147	329
<b>Yes</b>	38%	36%	<b>53%+</b>	40%	38%	<b>43%+</b>	41%	37%	<b>43%+</b>
<b>No</b>	58%	61%	<b>44%-</b>	57%	58%	<b>53%-</b>	56%	60%	<b>53%-</b>
<b>I don't know</b>	2%	2%	2%	1%	2%	2%	1%	1%	2%
<b>Prefer not to answer</b>	2%	1%	1%	2%	2%	2%	2%	2%	2%

Base: respondents who spend most or all of their working hours outdoors

The following subgroups were more likely to be provided personal protective equipment by their employer:

- Prairies residents (48%)
- Respondents aged 18 to 34 years old (47%)
- Respondents with a household income of \$100k and more (45%)
- Respondents who identify as men (42%)
- Respondents who mostly speak English at home (42%)

### 2.4.3 Workplace knowledge of mosquito and tick protection

Among respondents who spend most or all of their working hours outdoors, roughly six in ten report feeling moderately or very well informed about how to protect themselves while on the job. This includes 62% who say they are informed (moderately or very well) about preventing mosquito bites and mosquito-borne diseases at work, and a similar proportion who feel informed (moderately or very well) about protection against tick bites and tick-borne diseases (59%).

Table 41. How well informed are you about how to protect yourself from... **SUMMARY % INFORMED (moderately or very well informed)**

<b>WE3</b>	Total	Residents of high- risk areas for ticks	Parents of children 0-14	Outdoor enthusiasts	Occupation exposures	Travelled to another region in Canada	Travelled outside Canada	Living in a rural area	Cats and dogs owners
n= (weighted)	470	317	181	381	470	354	191	168	318
n= (unweighted)	471	326	204	378	471	363	209	147	329
<b>Mosquito bites and mosquito- borne diseases while on the job?</b>	62%	60%	65%	63%	62%	<b>65%+</b>	67%	62%	<b>66%+</b>

<b>Tick bites and tick-borne diseases while on the job?</b>	59%	61%	<b>66%+</b>	62%	59%	<b>63%+</b>	61%	61%	<b>63%+</b>
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Base: respondents who spend most or all of their working hours outdoors

The following subgroups were more likely to be moderately or very well informed about how to protect themselves from mosquito bites and mosquito-borne diseases while on the job:

- Respondents aged 55 years old or more (72%)
- Respondents living in large urban centres (70%)
- Ontario residents (69%)
- Respondents who mostly speak English at home (68%)

The following subgroups were more likely to be moderately or very well informed about how to protect themselves from tick bites and tick-borne diseases while on the job:

- Ontario residents (67%)
- Respondents who mostly speak English at home (65%)

## 2.5 Information seeking and awareness

### 2.5.1 Information seeking on mosquito-borne diseases

Looking at information-seeking behaviour related to mosquito-borne diseases, over a quarter of respondents report having ever looked for information on the topic (27%). The majority, however, say they have not done so (71%). Within this group, four in ten indicate they do not intend to look for information on mosquito-borne diseases, while three in ten say they may do so in the future (30%).

Table 42. Have you ever looked for information on mosquito-borne diseases?

GE1	Total	Residents of high-risk areas for ticks	Parents of children 0-14	Outdoor enthusiasts	Occupation exposures	Travelled to another region in Canada	Travelled outside Canada	Living in a rural area	Cats and dogs owners
n= (weighted)	5,006	3,500	1,044	3,609	470	3,270	1,820	1,422	2,596
n= (unweighted)	5,006	3,504	1,129	3,644	471	3,347	1,976	1,351	2,580
<b>Yes</b>	27%	27%	<b>32%+</b>	<b>30%+</b>	<b>32%+</b>	<b>30%+</b>	<b>32%+</b>	25%	<b>28%+</b>
<b>(NET) NO</b>	71%	70%	<b>65%-</b>	<b>69%-</b>	<b>65%-</b>	<b>68%-</b>	<b>67%-</b>	73%	70%
<b>No, but I plan to</b>	30%	<b>31%+</b>	29%	30%	<b>37%+</b>	30%	31%	28%	32%
<b>No, and I don't plan to</b>	40%	<b>39%-</b>	<b>37%-</b>	<b>39%-</b>	<b>28%-</b>	<b>39%-</b>	<b>36%-</b>	<b>44%+</b>	<b>38%-</b>
<b>Prefer not to answer</b>	2%	<b>3%+</b>	2%	<b>1%-</b>	3%	2%	<b>2%-</b>	2%	<b>2%-</b>

Base: all respondents

The following subgroups were more likely to have looked for information on mosquito-borne diseases:

- Respondents with a household income of \$100k and more (31%)
- Respondents who live in large urban centre (30%)

### 2.5.2 Information seeking on tick-borne diseases

When asked whether they have ever looked for information on tick-borne diseases, over one third of respondents report having done so (37%). In contrast, a little over three respondents out of five indicated they have not looked for this information (61%), including more than one quarter who say they plan to do so in the future (28%) and one third who do not plan to look for information on tick-borne diseases (33%). 2% did not answer this question.

Table 43. Have you ever looked for information on tick-borne diseases?

GE1	Total	Residents of high-risk areas for ticks	Parents of children 0-14	Outdoor enthusiasts	Occupation exposures	Travelled to another region in Canada	Travelled outside Canada	Living in a rural area	Cats and dogs owners
n= (weighted)	5,006	3,500	1,044	3,609	470	3,270	1,820	1,422	2,596
n= (unweighted)	5,006	3,504	1,129	3,644	471	3,347	1,976	1,351	2,580
<b>Yes</b>	37%	38%	<b>44%+</b>	<b>41%+</b>	37%	<b>41%+</b>	39%	<b>40%+</b>	<b>40%+</b>
<b>(NET) NO</b>	61%	<b>60%-</b>	<b>55%-</b>	<b>57%-</b>	61%	<b>58%-</b>	60%	<b>58%-</b>	<b>58%-</b>
<b>No, but I plan to</b>	28%	28%	28%	27%	<b>36%+</b>	27%	29%	<b>26%-</b>	28%
<b>No, and I don't plan to</b>	33%	<b>32%-</b>	<b>27%-</b>	<b>30%-</b>	<b>25%-</b>	<b>30%-</b>	31%	32%	<b>30%-</b>
<b>Prefer not to answer</b>	2%	<b>2%+</b>	2%	<b>1%-</b>	3%	2%	<b>1%-</b>	1%	<b>1%-</b>

Base: all respondents

The following subgroups were more likely to have looked for information on tick-borne diseases:

- Nova Scotia residents (55%)
- Respondents with a household income of \$100k and more (42%)
- Respondents who identify as women (41%)
- Quebec residents (40%)
- Respondents who mostly speak French at home (40%)
- Non-racialized respondents (40%)
- Respondents living in small population centres (40%)
- Respondents aged 35 to 54 years old (39%)

### 2.5.3 Reasons to not look at information on mosquitoes or mosquito-borne diseases

Among respondents who have not looked for information on mosquitoes or mosquito-borne diseases, the most frequently cited reason is a perceived lack of need, with just over one third saying they do not need this information (34%). Nearly one in five respondents (18%) indicate that they feel already well informed about mosquito-borne diseases. Awareness and access barriers are also common, as 16% say they did not know this type of information was available and an equal proportion report not knowing where to find it. Time constraints are mentioned by 14% of respondents, while 12% say they were not aware of mosquito-borne diseases prior to this survey. Smaller proportions report difficulty understanding this type of information (8%) or provide another reason (6%). Close to one respondent out of ten (8%) preferred to not answer.

**Table 44. Why haven't you looked for information on mosquitoes or mosquito-borne diseases?**

GE2	Total	Residents of high-risk areas for ticks	Parents of children 0-14	Outdoor enthusiasts	Occupation exposures	Travelled to another region in Canada	Travelled outside Canada	Living in a rural area	Cats and dogs owners
n= (weighted)	3,544	2,450	682	2,479	307	2,237	1,210	1,033	1,817
n= (unweighted)	3,433	2,388	707	2,412	285	2,229	1,270	960	1,733
<b>I don't have any need for this information</b>	34%	33%	36%	33%	<b>27%-</b>	35%	33%	32%	36%
<b>No need; I am already well-informed about mosquito-borne diseases</b>	18%	18%	<b>14%-</b>	18%	21%	18%	18%	<b>21%+</b>	18%
<b>I didn't know this type of information was available</b>	16%	<b>17%+</b>	14%	16%	19%	16%	17%	16%	15%
<b>I don't know where to get the information</b>	16%	<b>17%+</b>	16%	16%	15%	17%	16%	16%	<b>14%-</b>
<b>I don't have time to look for this information</b>	14%	14%	<b>20%+</b>	14%	18%	<b>15%+</b>	15%	14%	<b>16%+</b>
<b>I wasn't aware of mosquito-borne diseases</b>	12%	12%	12%	11%	<b>16%+</b>	11%	12%	12%	11%

before this survey									
I have trouble understanding this type of information	8%	8%	8%	7%	13%+	8%	8%	8%	8%
Other	6%	6%	4%-	7%+	5%	7%	7%	7%	5%-
Prefer not to answer	8%	8%	6%-	8%	8%	7%-	7%	7%	7%-

Base: respondents who have not looked for information on mosquitoes or mosquito-borne diseases

No significant differences between the different subcategories are observed for this question.

#### 2.5.4 Reasons to not look at information on ticks or tick-borne diseases

Among respondents who have not looked for information on ticks or tick-borne diseases, the most common reason cited is a perceived lack of need, with close to a third saying they do not need this information (30%). Knowledge-related barriers are also prominent, as 17% report not knowing where to find information, while 16% say they are already well informed about tick-borne diseases. A further 15% indicate they were unaware that this type of information was available, and 14% cite a lack of time to search for it. Notably, just over one in ten respondents (12%) say they were not aware of tick-borne diseases prior to the survey. Smaller proportions report difficulty understanding this type of information (8%) or provide another reason (5%). One respondent out of ten (10%) preferred not to answer.

Table 45. Why haven't you looked for information on ticks or tick-borne diseases?

GE2	Total	Residents of high-risk areas for ticks	Parents of children 0-14	Outdoor enthusiasts	Occupation exposures	Travelled to another region in Canada	Travelled outside Canada	Living in a rural area	Cats and dogs owners
n= (weighted)	3,070	2,104	571	2,068	286	1,888	1,091	827	1,511
n= (unweighted)	2,974	2,043	607	2,007	276	1,888	1,146	769	1,438
I don't have any need for this information	30%	29%-	31%	30%	23%-	31%	29%	28%	31%
I don't know where to get the information	17%	18%+	18%	18%	18%	19%+	17%	17%	17%
No need; I am already well-informed about tick-	16%	16%	13%	16%	22%+	15%	16%	19%+	17%

<b>borne diseases</b>									
<b>I didn't know this type of information was available</b>	15%	<b>17%+</b>	14%	16%	18%	16%	16%	15%	14%
<b>I don't have time to look for this information</b>	14%	13%	<b>19%+</b>	14%	<b>19%+</b>	15%	15%	13%	15%
<b>I wasn't aware of tick-borne diseases before this survey</b>	12%	13%	15%	<b>11%-</b>	<b>21%+</b>	13%	13%	12%	11%
<b>I have trouble understanding this type of information</b>	8%	9%	10%	8%	<b>13%+</b>	9%	9%	8%	9%
<b>Other</b>	5%	5%	<b>3%-</b>	5%	<b>2%-</b>	6%	6%	5%	<b>4%-</b>
<b>Prefer not to answer</b>	10%	10%	<b>7%-</b>	9%	<b>6%-</b>	<b>8%-</b>	8%	9%	9%

Base: respondents who have not looked for information on ticks or tick-borne diseases

No significant differences between the different subcategories are observed for this question.

### 2.5.5 Information sought about mosquito-borne diseases

Among respondents who have looked for information on mosquitoes or mosquito-borne diseases, the most frequently sought information concerns symptoms, cited by more than three quarters of respondents (77%). Preventive information is also a key area of interest, with seven in ten respondents indicating they looked for ways to protect themselves (70%). Close to three out of five searched for information on available treatments (58%), while just over half sought to understand how mosquito-borne diseases are spread (54%). 4% mentioned other types of information and 2% preferred not to answer.

Table 46. What information about mosquito-borne diseases have you looked for?

<b>GE3</b>	<b>Total</b>	<b>Residents of high-risk areas for ticks</b>	<b>Parents of children 0-14</b>	<b>Outdoor enthusiasts</b>	<b>Occupation exposures</b>	<b>Travelled to another region in Canada</b>	<b>Travelled outside Canada</b>	<b>Living in a rural area</b>	<b>Cats and dogs owners</b>
n= (weighted)	1,351	962	339	1,078	150	969	581	358	736
n= (unweighted)	1,484	1,049	401	1,194	177	1,069	681	367	813
<b>What are the symptoms</b>	77%	78%	78%	78%	<b>68%-</b>	77%	76%	77%	75%

<b>How can I protect myself</b>	70%	72%	70%	71%	73%	71%	70%	72%	71%
<b>What treatments are available</b>	58%	57%	<b>63%+</b>	58%	59%	59%	56%	57%	59%
<b>How are they spread</b>	54%	54%	54%	54%	55%	55%	<b>50%-</b>	52%	53%
<b>Other</b>	4%	4%	<b>3%-</b>	4%	<b>1%-</b>	5%	4%	5%	4%
<b>Prefer not to answer</b>	2%	2%	<b>1%-</b>	<b>1%-</b>	<b>0%-</b>	2%	2%	1%	2%

*Base: respondents who have looked for information on mosquitoes or mosquito-borne diseases*

No significant differences between the different subcategories are observed for this question.

### 2.5.6 Information sought about tick-borne diseases

Among respondents who have looked for information on ticks or tick-borne diseases, the most sought information relates to symptoms, mentioned by the vast majority (85%). Preventive measures are also a key focus, with more than seven in ten respondents indicating they looked for information on how to protect themselves (71%). Nearly two thirds sought information on available treatments (63%), while just over half looked into how tick-borne diseases are spread (53%). 4% mentioned other information and 1% preferred not to answer.

*Table 47. What information about tick-borne diseases have you looked for?*

<b>GE3</b>	<b>Total</b>	<b>Residents of high-risk areas for ticks</b>	<b>Parents of children 0-14</b>	<b>Outdoor enthusiasts</b>	<b>Occupation exposures</b>	<b>Travelled to another region in Canada</b>	<b>Travelled outside Canada</b>	<b>Living in a rural area</b>	<b>Cats and dogs owners</b>
n= (weighted)	1,836	1,317	458	1,494	172	1,325	702	574	1,048
n= (unweighted)	1,948	1,396	505	1,600	186	1,413	807	565	1,110
<b>What are the symptoms</b>	85%	85%	84%	86%	<b>73%-</b>	85%	85%	87%	85%
<b>How can I protect myself</b>	71%	72%	68%	72%	66%	71%	70%	73%	<b>69%-</b>
<b>What treatments are available</b>	63%	63%	63%	64%	64%	64%	63%	66%	64%
<b>How are they spread</b>	53%	54%	53%	53%	57%	54%	53%	52%	53%
<b>Other</b>	4%	4%	<b>1%-</b>	4%	3%	4%	3%	4%	4%
<b>Prefer not to answer</b>	1%	1%	1%	1%	1%	1%	1%	1%	1%

*Base: respondents who have looked for information on ticks or tick-borne diseases*

No significant differences between the different subcategories are observed for this question.

### 2.5.7 Awareness of eTick

Before answering the survey, awareness of eTick was very limited among respondents. Only 13% report having heard of eTick, including a small proportion who say they have used it (3%) and one in ten who are aware of it but have never used it (10%). In contrast, most respondents indicate they had not heard of eTick prior to the survey (86%).

Table 48. Before today, had you ever heard of eTick?

GE4	Total	Residents of high-risk areas for ticks	Parents of children 0-14	Outdoor enthusiasts	Occupation exposures	Travelled to another region in Canada	Travelled outside Canada	Living in a rural area	Cats and dogs owners
n= (weighted)	5,006	3,500	1,044	3,609	470	3,270	1,820	1,422	2,596
n= (unweighted)	5,006	3,504	1,129	3,644	471	3,347	1,976	1,351	2,580
<b>(NET) YES</b>	13%	13%	<b>21%+</b>	<b>14%+</b>	<b>31%+</b>	<b>15%+</b>	14%	14%	<b>17%+</b>
<b>Yes, and I've used it</b>	3%	3%	<b>6%+</b>	3%	<b>12%+</b>	<b>4%+</b>	4%	3%	<b>5%+</b>
<b>Yes, but I've never used it</b>	10%	10%	<b>15%+</b>	10%	<b>19%+</b>	<b>11%+</b>	10%	10%	<b>12%+</b>
<b>No</b>	86%	86%	<b>78%-</b>	86%	<b>69%-</b>	<b>85%-</b>	85%	86%	<b>83%-</b>
<b>Prefer not to answer</b>	1%	1%	1%	<b>0%-</b>	<b>0%-</b>	0%	1%	0%	1%

Base: all respondents

The following subgroups were more likely to have heard of eTick before answering the survey:

- Respondents who identify as Indigenous (25%)
- Respondents who identify as South Asian (23%)
- Manitoba residents (21%)
- Respondents aged between 18 to 34 years old (20%)
- Respondents in the workforce (16%)
- Ontario residents (15%)
- Respondents with a household income of \$100k and more (15%)
- Respondents who identify as men (14%)
- Respondents who mostly speak English at home (14%)

### 2.5.8 Source of information

Regarding sources of information on health-related issues, health care professionals such as doctors or nurse practitioners are the primary source for nearly two thirds of respondents (65%). Online searching also plays a key role, with half of respondents (50%) relying on Google or other search engines, followed by medical websites (42%). Pharmacists and pharmacies are another important source, mentioned by

nearly half of respondents (47%), while government information at the local, provincial, or federal level is consulted by just over one third (37%). Personal networks are less prominent, with close to three in ten respondents turning to friends or family (29%). Fewer respondents rely on digital or alternative sources, including social media platforms (15%) and artificial intelligence tools such as ChatGPT (12%). International resources (7%) and influencers (3%) are rarely cited. 1% mentioned other source of information.

Table 49. In general, where do you get information on health-related issues?

GE5	Total	Residents of high-risk areas for ticks	Parents of children 0-14	Outdoor enthusiasts	Occupation exposures	Travelled to another region in Canada	Travelled outside Canada	Living in a rural area	Cats and dogs owners
n= (weighted)	5,006	3,500	1,044	3,609	470	3,270	1,820	1,422	2,596
n= (unweighted)	5,006	3,504	1,129	3,644	471	3,347	1,976	1,351	2,580
<b>Health care professionals such as a doctor /nurse practitioner</b>	65%	64%	62%	<b>67%+</b>	<b>54%-</b>	65%	65%	66%	64%
<b>Google or other search engine</b>	50%	50%	<b>53%+</b>	<b>51%+</b>	<b>45%-</b>	50%	<b>52%+</b>	49%	50%
<b>Pharmacist /pharmacy</b>	47%	46%	<b>41%-</b>	<b>48%+</b>	<b>39%-</b>	47%	46%	<b>52%+</b>	46%
<b>Medical websites</b>	42%	42%	41%	<b>44%+</b>	<b>31%-</b>	<b>44%+</b>	44%	<b>40%-</b>	43%
<b>Government information including local/municipal, provincial and federal</b>	37%	38%	34%	<b>39%+</b>	<b>31%-</b>	<b>38%+</b>	37%	<b>33%-</b>	36%
<b>Friends &amp; Family</b>	29%	<b>30%+</b>	30%	<b>30%+</b>	28%	<b>31%+</b>	<b>32%+</b>	28%	28%
<b>Social media (e.g., Facebook, X, Instagram)</b>	15%	15%	<b>20%+</b>	15%	<b>23%+</b>	<b>16%+</b>	15%	<b>12%-</b>	15%
<b>Artificial intelligence (such as ChatGPT)</b>	12%	13%	<b>19%+</b>	13%	<b>18%+</b>	13%	<b>16%+</b>	<b>9%-</b>	13%
<b>International resources</b>	7%	8%	<b>11%+</b>	7%	<b>12%+</b>	<b>8%+</b>	<b>8%+</b>	<b>5%-</b>	8%
<b>Influencers</b>	3%	3%	<b>4%+</b>	3%	<b>9%+</b>	<b>3%+</b>	3%	2%	3%
<b>Other</b>	1%	1%	<b>0%-</b>	1%	1%	1%	1%	1%	1%

Base: all respondents

Significant differences between the different subcategories include:

- British Columbia residents were more likely to get information from medical websites (47%).
- Ontario residents were more likely to get information from a health care professional (67%), from friends and family (31%), and from social media (18%).
- Quebec residents were more likely to consult a pharmacist/pharmacy (57%) and to use artificial intelligence tools such as ChatGPT (15%).
- Atlantic Canada residents were more likely to consult a pharmacist/pharmacy (54%).
- Women were more likely to mention most sources of information.
- Those aged 18-34 were more likely to get information from friends and family (34%), social media (23%), artificial intelligence such as ChatGPT (18%), international resources (10%), and influencers (6%).
- Those aged 35-54 were more likely to use Google or other search engines (53%), artificial intelligence such as ChatGPT (15%), and international resources (9%).
- Those aged 55+ were more likely to get information from a health care professional such as a doctor/nurse practitioner (74%), a pharmacist/pharmacy (56%), medical websites (46%), and government sources (41%).
- Respondents who mostly speak English at home were more likely to get information from a health care professional such as a doctor/nurse practitioner (66%), medical websites (44%), friends and family (30%), and social media (16%).
- Respondents who mostly speak French at home were more likely to consult a pharmacist/pharmacy (60%) and to use artificial intelligence such as ChatGPT (16%).
- Respondents who mostly speak another language at home were more likely to get information from friends and family (38%), social media (23%), artificial intelligence such as ChatGPT (21%), and international resources (13%).
- Non-racialized respondents were more likely to get information from a health care professional such as a doctor/nurse practitioner (68%), a pharmacist/pharmacy (50%), medical websites (43%), and government sources (38%).
- Racialized respondents were more likely to get information from friends and family (33%), social media (25%), artificial intelligence such as ChatGPT (18%), international resources (11%), and influencers (5%).

## Appendix A—Detailed Research Methodology

Quantitative research was conducted through online surveys using Computer Aided Web Interviewing (CAWI) technology. As a CRIC Member, Leger adheres to the most stringent guidelines for quantitative research. The survey was conducted in accordance with the Government of Canada requirements for quantitative research, including the Standards of the Conduct of Government of Canada Public Opinion Research—Series D—Quantitative Research. Respondents were assured of the voluntary, confidential and anonymous nature of this research. As with all research conducted by Leger, all information that could allow for the identification of participants was removed from the data in accordance with the *Privacy Act*.

### Sampling Procedures

#### *Computer Aided Web Interviewing (CAWI)*

Leger conducted a panel-based Internet survey with a sample of adult Canadians. A total of 5,006 respondents participated in the survey. The exact distribution is presented in the following section. Participant selection was done randomly from *Leo's* online panel.

Leger owns and operates an Internet panel of more than 400,000 Canadians from coast to coast. An Internet panel is made up of Web users profiled on different sociodemographic variables. The majority of Leger's panel members (61%) have been recruited randomly over the phone over the past decade, making it highly similar to the actual Canadian population on many demographic characteristics.

### Quality Control Measures

To make sure that online respondents answered the survey properly and seriously, Leger proposes two basic methods. The first one is to insert a simple validation question within the questionnaire, such as: "To ensure that your browser is downloading the content of this survey properly, please select the number four below". Respondents who do not choose the number four would then be automatically excluded from the survey. Our experience shows that including such a question reduces the likelihood that respondents do not read the questions. The filter question used varies from survey to survey so as not become too obvious to all respondents.

In addition to this simple filter, Leger also checks its survey completion times so that all questionnaires filled more than twice as fast as the median completion time are checked for internal consistency. If there are any indications that responses are following a "straight-lining" pattern or contain too many residual answers (don't know or preferred not to answer), this respondent would be removed from the study. Any respondent that answered the survey in less than 30% of the median completion time is automatically removed from the sample as such speeds are simply not achievable when reading questions properly.

## Data Collection

Fieldwork for the survey was conducted from November 10<sup>th</sup> to December 12<sup>th</sup>, 2025. The participation rate for the survey was 7.56%. A pre-test of 63 interviews was completed between November 10<sup>th</sup> and 11<sup>th</sup>, 2025. More specifically, 51 interviews were conducted in English and 12 were conducted in French. No changes were necessary after pre-testing. Survey interviews lasted 11 minutes.

To achieve data reliability in all subgroups, a total sample of 5,006 Canadians aged 18 or older were surveyed in all regions of the country.

A stratified sampling strategy was employed to ensure adequate representation by province and age group. Quotas were applied based on the distribution outlined below, reflecting the geographic and demographic diversity of the Canadian population, as per the latest Census data. The weight of Prince Edward Island (PEI) has been slightly increased to ensure a minimum of 30 respondents. This allows for meaningful individual analysis of PEI, even though the province is grouped with the other Atlantic provinces in the broader analysis to enhance statistical robustness.

**Table A1. Respondents per Region**

Region	Expected n	Unweighted n
Ontario	1,950	1,953
Québec	1,200	1,201
British Columbia	680	680
Alberta	550	551
Manitoba	170	170
Saskatchewan	140	140
Nova Scotia	130	130
New Brunswick	100	100
Newfoundland and Labrador	50	50
Prince Edward Island	30	31
<b>Total</b>	<b>5,000</b>	<b>5,006</b>

Quotas were also set to meet minimum expected sample size for key target audiences. All quotas were exceeded.

**Table A2. Respondents per Key Audience**

Key Audience	Minimum expected sample size	Unweighted n
People who are residents in areas of higher risk of mosquito-borne and tick-borne diseases (focusing on regions of Canada closest to the border)	500	3,504
Parents of children 0-14 years of age	500	1,129
People who are “outdoor enthusiasts” (i.e., those who spend time outdoors)	500	3,644

People with occupational exposures (e.g., agriculture, forestry)	300	471
People who travelled in another region within Canada	200	3,347
People who travelled outside Canada	200	1,976
People living in rural areas	500	1,351
People with pets (in particular dogs and cats)	500	2,580
<b>Total</b>	<b>5,000</b>	<b>5,006</b>

Since a sample drawn from an Internet panel is not probabilistic in nature, the margin of error cannot be calculated for this survey. Respondents for this survey were selected from those who volunteered to participate/registered to participate in online surveys. The results of such surveys cannot be described as statistically projectable to the target population. The data have been weighted to reflect the demographic composition of the target population. Because the sample is based on those who initially self-selected for participation, no estimates of sampling error can be calculated.

Based on the most recent data from Statistics Canada's 2021 national census, Leger weighted the results of this survey by age, gender and region, language most spoken at home, and education level.

### Participation Rate for the Web Survey

The overall participation rate for this study is 7.56%.

Below is the calculation of the Web survey's participation rate. The participation rate is calculated by dividing the number of completed questionnaires by the number of invitations sent. The typical participation rates for Web-surveys are between 20% and 30%. A response rate of 7.56% may seem a bit low but given the limited amount of time for fieldwork, invitations had to be spread more widely in the panel to achieve the objectives, which has an impact on the participation rate.

**Table A3. Participation Rate**

<b>Total email addresses used</b>	
<b>Invalid Cases</b>	
-invitations mistakenly sent to people who did not qualify for the study	931
-incomplete or missing email addresses	-
<b>Unresolved (U)</b>	<b>65,103</b>
-email invitations bounce back	94
-email invitations unanswered	65,009
<b>In-scope non-responding units (IS)</b>	<b>478</b>
-respondent did not answer	-
-language problem	-
-early breakoffs	478

<b>Responding units (R)</b>	<b>5,365</b>
-completed surveys disqualified—quota filled	297
-completed surveys disqualified for other reasons	62
-completed surveys	5,006
<b>Participation rate/response rate = R ÷ (U + IS + R)</b>	<b>7.56%</b>

### Additional Socio-Demographic Analysis

A basic comparison of the unweighted and weighted sample sizes was conducted to identify any potential non-response bias that could be introduced by lower response rates among specific demographic subgroups (see tables below).

### Unweighted and Weighted Samples

The table below presents the geographic distribution of respondents before and after weighting. There were almost no imbalances in geographical distribution in the unweighted sample. The weighting process has mainly adjusted some minor discrepancies.

**Table A4. Unweighted and Weighted Sample Distribution by Province**

Province/Territory	Unweighted	Weighted
British Columbia	680	697
Alberta	551	557
Prairies	310	322
Ontario	1,953	1,938
Quebec	1,201	1,156
Atlantic	311	337

The following tables present the demographic distribution of respondents according to gender, and age group. We can see that weighting has adjusted slightly the proportion of men and women.

**Table A5. Unweighted and Weighted Sample Distribution by Gender**

GENDER	Unweighted	Weighted
Men	2,347	2,413
Women	2,631	2,565
Non-binary / Another gender identity	26	25

Regarding age distribution, the weighting process has corrected some discrepancies.

**Table A6. Unweighted and Weighted Sample Distribution by Age Group**

AGE	Unweighted	Weighted
18-24	349	505
25-34	986	830
35-44	965	825
45-54	747	786

55-64	851	878
65+	1,208	1,182

Regarding the language most frequently spoken at home, the weighting slightly adjusted the proportions.

**Table A7. Unweighted and Weighted Sample Distribution by Language most frequently spoken at home**

Language	Unweighted	Weighted
English	3,675	3,836
French	1,126	968
Other	181	176

Regarding education, the weighting process corrected certain discrepancies, as there were more respondents with a university degree than those with a primary or high school diploma, or trade or college diplomas.

**Table A8. Unweighted and Weighted Sample Distribution by Education level**

Education	Unweighted	Weighted
Primary or high school diploma	972	1,367
Trade or College	1,519	2,065
University degree	2,495	1,544

The data provides no evidence that differences in age, language most frequently spoken at home, or education distribution prior to weighting would have significantly altered the results of this study. The relatively small weight factors (see the section below) and differences in responses between various subgroups suggest that data quality was not affected. The weight that was applied corrected the initial imbalance for data analysis purposes, and no further manipulations were necessary.

As with all research conducted by Leger, the contact information was kept entirely confidential and all information that could allow for the identification of participants was removed from the data in accordance with Canada's *Privacy Act*.

#### Note on testing for statistical differences

According to the normal distribution, a two-tailed test is always done between two proportions and based on the unweighted total columns. The test is performed by comparing a percentage with the percentage formed by the complement of the relevant category (e.g., of the male subgroup is the female subgroup; the complement of the 18-24 age subgroup is the 25-34 age subgroup). The test results (if they are significant at a confidence level of at least 95%) are mentioned in the table analysis.

In the report, when we indicate that a sub-group of the sample is "more likely" or "less likely", it means that the statistical testing returned a valid statistically significant difference between this subgroup and its complement, even if the percentage is low. Only relevant and statistically significant differences are mentioned.

## Weighting Factors

Some subgroups are sometimes under or overrepresented in a sample compared to their actual distribution in the population. The weighting of a sample makes it possible to correct the differences that exist in the representation of the various subgroups of this sample compared to what is usually observed in the population under study. Therefore, the weighting factors are the weight given to each respondent corresponding to a subgroup of the sample.

The following tables present the weight accorded to each target of the sample.

**Table A9. Weight by Gender, Age and Province/Territory**

<b>GENDER BY AGE BY PROVINCE/TERRITORY</b>	<b>WEIGHT</b>
BC M 18-24	0.69
BC M 25-34	1.18
BC M 35-44	1.12
BC M 45-54	1.04
BC M 55-64	1.16
BC M 65+	1.60
BC F 18-24	0.65
BC F 25-34	1.17
BC F 35-44	1.15
BC F 45-54	1.12
BC F 55-64	1.24
BC F 65+	1.83
AB M 18-24	0.61
AB M 25-34	1.01
AB M 35-44	1.08
AB M 45-54	0.91
AB M 55-64	0.90
AB M 65+	0.99
AB F 18-24	0.57
AB F 25-34	1.01
AB F 35-44	1.09

AB F 45-54	0.91
AB F 55-64	0.92
AB F 65+	1.12
MB/SK M 18-24	0.38
MB/SK M 25-34	0.56
MB/SK M 35-44	0.55
MB/SK M 45-54	0.48
MB/SK M 55-64	0.53
MB/SK M 65+	0.66
MB/SK F 18-24	0.35
MB/SK F 25-34	0.55
MB/SK F 35-44	0.56
MB/SK F 45-54	0.49
MB/SK F 55-64	0.55
MB/SK F 65+	0.78
ON M 18-24	2.12
ON M 25-34	3.32
ON M 35-44	3.00
ON M 45-54	2.98
ON M 55-64	3.29
ON M 65+	4.04
ON F 18-24	1.97
ON F 25-34	3.27
ON F 35-44	3.19
ON F 45-54	3.20
ON F 55-64	3.47
ON F 65+	4.85
QC M 18-24	1.09
QC M 25-34	1.80
QC M 35-44	1.89

QC M 45-54	1.76
QC M 55-64	2.07
QC M 65+	2.70
QC F 18-24	1.04
QC F 25-34	1.78
QC F 35-44	1.89
QC F 45-54	1.74
QC F 55-64	2.11
QC F 65+	3.21
ATL M 18-24	0.32
ATL M 25-34	0.47
ATL M 35-44	0.47
ATL M 45-54	0.52
ATL M 55-64	0.63
ATL M 65+	0.85
ATL F 18-24	0.30
ATL F 25-34	0.47
ATL F 35-44	0.50
ATL F 45-54	0.55
ATL F 55-64	0.67
ATL F 65+	0.99

**Table A10. Weight by Language most frequently spoken at home**

<b>LANGUAGE</b>	<b>WEIGHT</b>
French – Rest of Canada	1.45
French – Quebec	17.88
English/other – Rest of Canada	75.46
English/other – Quebec	5.20

**Table A11. Weight by Education level**

EDUCATION	WEIGHT
Primary/High school/ College	69.15
University – Rest of Canada	24.32
University – Quebec	6.52

## Appendix B – SURVEY QUESTIONNAIRE

### Page 1: Landing Page

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Please select the language in which you wish to complete the survey.

- English
- French

[NEXT]

### Page 2: Survey Intro Page

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Thank you for agreeing to take part in this survey. We anticipate that the survey will take up to 15 minutes to complete.

#### **Background information**

This research is being conducted by Léger Marketing, a Canadian public opinion research firm, on behalf of Public Health Agency of Canada (PHAC).

The purpose of this online survey is to collect feedback that will be used to develop tools and resources to help people in Canada make informed decisions on how protect themselves and their families from mosquito-borne and tick-borne diseases.

If you wish to verify the authenticity of this survey, please copy this link on your browser:  
<https://www.canadianresearchinsightscouncil.ca/rvs/home/?lang=en>

The CRIC Research Verification Service project code is:

20251029-LE243

#### **How does the online survey work?**

- Your participation in the survey is completely voluntary and confidential.
- Your decision on whether or not to participate will not affect any dealings you may have with the Government of Canada, now or in future.

#### **What about your personal information?**

- Please be assured that all opinions will remain anonymous and will not be attributed to you personally in any way.
- The personal information you will provide to PHAC is governed in accordance with the *Privacy Act* and is being collected under the authority of section 4 of the Department of Health Act in accordance with the *Treasury Board Directive on Privacy Practices*. For more information, click [here](#).

- Your personal information will be collected by Léger Marketing in accordance with the applicable provincial privacy legislation or the [Personal Information Protection and Electronic Documents Act](#) (PIPEDA).

**What happens after the online survey?**

The final report written by Léger Marketing will be available to the public through [Library and Archives Canada](#).

If you have any questions about the survey, you may contact Leger Marketing at [support@legeropinion.com](mailto:support@legeropinion.com).

Your participation is greatly appreciated, and we look forward to receiving your feedback.

**[CONTINUE]**

**Page 3: Reminders**

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On each screen, after selecting your answer, click on the "Continue" button at the bottom of the screen to move forward in the survey. If you leave the survey before completing it, you can return to the survey URL later, and you will be returned to the page where you left off. Your answers up to that point in the survey will be saved.

**PROGRAMMING NOTES:**

ALL SURVEY QUESTIONS TO BE PRESENTED 1 QUESTION PER PAGE UNLESS OTHERWISE INDICATED.

SECTION TITLES SHOULD NOT APPEAR ON SCREEN FOR RESPONDENTS.

DO NOT PRESENT QUESTION NUMBERS.

INCLUDE A PROGRESS BAR.

ALL QUESTIONS ARE MANDATORY.

**Screening**

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**AGE1.**

[Validation between 1900 and 2007]

[TERMINATE BETWEEN 2008 and 2025]

In what year were you born?

FORMAT [YYYY]

99 I prefer not to answer

TERMINATE IF UNDER 18

TERMINATION MESSAGE [AGE]:

Thank you very much for your interest in completing this survey. Unfortunately, you must be at least 18 years of age to take part in this survey.

**[ASK IF 99 at AGE1]**

**SCR1.** Would you be willing to indicate in which of the following age categories you belong?

- 01 Under 18 [TERMINATE]
- 02 18 to 24
- 03 25 to 34
- 04 35 to 44
- 05 45 to 54
- 06 55 to 64
- 07 65 or older
- 99 Prefer not to answer [TERMINATE]

TERMINATE IF UNDER 18

TERMINATION MESSAGE [AGE]:

Thank you very much for your interest in completing this survey. Unfortunately, you must be at least 18 years of age to take part in this survey.

**PROV.** In which province or territory do you currently live?

1. British Columbia
2. Alberta
3. Saskatchewan
4. Manitoba
5. Ontario
6. Quebec
7. New Brunswick
8. Nova Scotia
9. Prince Edward Island
10. Newfoundland and Labrador
11. Northwest Territories **TERMINATE**
12. Yukon **TERMINATE**
13. Nunavut **TERMINATE**

**[ASK ALL]**

**SCR2.** What are the first three digits of your postal code?

01 [OPEN; TEXT – VALIDATE AGAINST LIST]

99 Prefer not to answer [TERMINATE]

TERMINATE IF POSTAL CODE FROM THE TERRITORIES

**SCR3.** In the previous 30 days, have you participated in...

**Select all that apply**

01 A Government of Canada survey

02 A survey on ticks or mosquitoes

03 None of the above [CONTINUE; TERMINATE IF SCR3=01-02]

TERMINATION MESSAGE [GENERAL]:

Thank you very much for your interest in completing this survey. Unfortunately, you are not eligible for this survey.

**Quotas**

[ASK ALL]

[SINGLE MENTION]

**SEX1**

What was your **sex at birth**?

*Sex refers to sex assigned at birth.*

01 Man

02 Women

**Q1. How do you identify your gender? This may be different from the information noted on your birth certificate or other official documents. *Gender refers to an individual's personal and social identity as a man, a woman, or a person who is not exclusively a man or a woman (for example, non-binary, agender, gender fluid, queer, or Two-Spirit).***

01 Man

02 Women

03 Non-binary person

99 Prefer not to answer

**Q2. Are you the parent or guardian of any child under 18 years of age living at home with you?**

01 Yes

02 No

03 Prefer not to answer

**[ASK IF Q2=01]**

**Q3. How old is/are the child/children?**

Select all that apply

01 Under 6 years of age

[PARENT QUOTA]

02 6 to 11 years

[PARENT QUOTA]

- 03 12 to 14 years [PARENT QUOTA]
- 04 15 to 17 years
- 99 Prefer not to answer

**SCOL. What is the highest level of formal education that you have completed?**

- 01 Less than a high school diploma or equivalent
- 02 High school diploma or equivalent
- 03 Registered Apprenticeship or other trades certificate or diploma
- 04 College, CEGEP or other non-university certificate or diploma
- 05 University certificate or diploma below bachelor level
- 06 Bachelor's degree
- 07 Post-graduate degree above bachelor level
- 99 Prefer not to answer

**Q4. Do you have a pet or other animal?**

Select all that apply

- 01 No
- 02 Yes, a dog [PET QUOTA]
- 03 Yes, a cat [PET QUOTA]
- 04 Yes, other. Please specify:
- 99 Prefer not to answer

**Q5. Over the past 12 months, have you travelled...**

Select all that apply

- 01 Within your province [TRAVELLED TO ANOTHER REGION QUOTA]
- 02 Outside your province (still within Canada) [TRAVELLED TO ANOTHER REGION QUOTA]
- 03 Outside Canada [TRAVELLED OUTSIDE CANADA QUOTA]

04 No, I have not travelled

99 Prefer not to answer

**[01 TO 04 IN ROTATION]**

**Q6. In the last year, which of the following outdoor activities have you done?**

Select all that apply

01 Gardening and/or landscaping (mowing lawn, raking leaves, etc.)

02 Hiking, nature walks, trail running

03 Outdoor sports played on a field (soccer, baseball, football, golf, etc.)

04 Camping or spending time at a vacation property (i.e., cabin, camp, cottage or chalet)

05 Other – Please specify:

06 None of the above

99 Prefer not to answer

**[SKIP IF Q6=06,99]**

**Q7. In a typical year, how often do you engage in these outdoor activities?**

[GRID LAYOUT]

[ROWS: ITEMS FROM Q6]

[COLUMNS: RESPONSE OPTIONS]

01 Less than 5 times per year

02 5 or more times per year [OUTDOOR ENTHUSIAST QUOTA]

99 Prefer not to answer

**Q8. Which of the following best describes the size of your community?**

01 Rural area (less than 1,000 people) [RURAL QUOTA]

02 Small population centre (1,000 to 29,999 people) [RURAL QUOTA]

03 Medium population centre (30,000 to 99,999 people)

04 Large urban population centre (100,000+ people)

99 Prefer not to answer

**Q9. Which of the following categories best describes your current employment status?**

01 Working full-time (30 or more hours per week)

02 Working part-time (less than 30 hours per week)

03 Self-employed or doing unpaid work for a family member's business or farm

04 Unemployed, that is, looking for work, temporarily laid off, or starting a new job within a month

05 Not in the workforce, that is, not available or not able to do paid work due to school, family responsibilities, disability or retirement, etc.

99 Prefer not to answer

**[IF Q9=01,02,03]**

**Q10. Does the work you do require you to spend most or all of the day outdoors?**

01 Yes [ENVIRONMENTAL EXPOSURE  
QUOTA]

02 No

99 Prefer not to answer

**[IF Q10=01]**

**Q11. Which of the following best describes the industry or sector you work in?**

01 Agriculture/Farming [NAICS #11]<sup>1</sup>

02 Forestry/Logging [NAICS #11]

03 Fishing [NAICS #11]

04 Hunting [NAICS #11]

05 Oil and gas extraction [NAICS #21]<sup>2</sup>

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<sup>1</sup> NAICS Label: Agriculture, Forestry, Fishing and Hunting

<sup>2</sup> NAICS Label: Mining, Quarrying, and Oil and Gas Extraction

06 Mining	[NAICS #21]
07 Utilities	[NAICS #22]
08 Construction	[NAICS #23]
09 Landscaping	[NAICS #56] <sup>3</sup>
10 Land surveying/Mapping	[NAICS #54] <sup>4</sup>
11 Railroad services	[NAICS #48-49] <sup>5</sup>
12 Wildlife conservation and management	[NAICS #91] <sup>6</sup>
13 Land conservation and management	[NAICS #91]
14 Nature parks, reserves and/or centres	[NAICS #71] <sup>7</sup>
15 Summer camps / Outdoor recreation program	[NAICS #71]
16 Other - Please specify:	
99 Prefer not to say	

**QUOTAS – DO NOT SHOW**

<b>Audiences</b>	<b>Minimal sample size</b>	<b>Definition</b>
People who are residents in areas of higher risk of mosquito-borne and tick-borne diseases (focusing on regions of Canada closest to the border)	500	FCR2a=list
Parents of children 0-14 years of age	500	Q3=1,2,3
People who are “outdoor enthusiasts” (i.e., those who spend time outdoors)	500	Q7=2

<sup>3</sup> NAICS Label: Administrative and support, waste management and remediation services

<sup>4</sup> NAICS Label: Professional, scientific and technical services

<sup>5</sup> NAICS Label: Transportation and warehousing

<sup>6</sup> NAICS Label: Public administration

<sup>7</sup> NAICS Label: Arts, entertainment and recreation

People with occupational exposures (e.g., agriculture, forestry)	300	Q10=1
People who travelled in another region within Canada	200	Q5=1,2
People who travelled outside Canada	200	Q5=3
People living in rural areas	500	Q8=1,2
People with pets (in particular dogs and cats)	500	Q4=2,3

(SHOW IF THE MINIMUM SAMPLE SIZE FOR QUOTAS HAS ALREADY BEEN MET AND NO FURTHER RESPONDENTS ARE NEEDED).

Thank you very much for your willingness to complete this survey. We're sorry, but at this time we've already received a sufficient number of completed surveys from people with a similar profile to yours.

**QFILTRE1**

General knowledge + Awareness		
	MOSQUITOES	TICKS
GA1.	Do you think mosquitoes can carry diseases? A. Yes B. No C. I don't know	
GA2.	<p><b>1. ASK IF GA1=1 [IN ROTATION]</b>  <i>Do you think there are mosquitoes that carry diseases...</i></p> A. In Canada B. In the United States C. In other countries  1. Yes 2. No	

	<p>3. I don't know</p> <p>INFO BOX: You can get a mosquito-borne disease if you are bitten by an infected mosquito.</p>	
<p>GA3.</p>	<p><b>ASK ALL</b> <b>[SINGLE MENTION GRID]</b></p> <p>How familiar are you with each of the following diseases?</p> <p><b>Statements (RANDOMIZE):</b></p> <ul style="list-style-type: none"> <li>A. Dengue</li> <li>B. Zika</li> <li>C. West Nile Virus</li> <li>D. Eastern equine encephalitis</li> <li>E. Oropouche virus</li> <li>F. California serogroup</li> <li>G. Chikungunya</li> <li>H. Malaria</li> <li>I. Yellow fever</li> <li>J. Japanese encephalitis</li> <li>K. Avian influenza (bird flu)</li> <li>L. COVID-19</li> <li>M. Norovirus</li> <li>N. Lyme disease</li> <li>O. Anaplasmosis</li> <li>P. Powassan virus disease</li> <li>Q. Babesiosis</li> <li>R. Rocky Mountain spotted fever</li> </ul> <p><b>RESPONSE OPTIONS (In order)</b></p> <ul style="list-style-type: none"> <li>1. Very familiar</li> <li>2. Somewhat familiar</li> <li>3. Not very familiar</li> <li>4. Not at all familiar</li> <li>5. Prefer not to answer</li> </ul>	
<p><b>Perceptions of Risk</b></p>		

<p>PR1.</p>	<p><b>ONLY SHOW FOR FAMILIAR DESEASES (GA3=1,2,3)</b></p> <p>How concerned are you about each of the following diseases?</p> <p><b>Statements (SAME ORDER AS GA3):</b></p> <ul style="list-style-type: none"> <li>A. Dengue</li> <li>B. Zika</li> <li>C. West Nile Virus</li> <li>D. Eastern equine encephalitis</li> <li>E. Oropouche virus</li> <li>F. California serogroup</li> <li>G. Chikungunya</li> <li>H. Malaria</li> <li>I. Yellow fever</li> <li>J. Japanese encephalitis</li> <li>K. Avian influenza (bird flu)</li> <li>L. COVID-19</li> <li>M. Norovirus</li> <li>N. Lyme disease</li> <li>O. Anaplasmosis</li> <li>P. Powassan virus disease</li> <li>Q. Babesiosis</li> <li>R. Rocky Mountain spotted fever</li> </ul> <p><b>RESPONSE OPTIONS (In order)</b></p> <ul style="list-style-type: none"> <li>1. Very concerned</li> <li>2. Somewhat concerned</li> <li>3. Not very concerned</li> <li>4. Not at all concerned</li> <li>5. Prefer not to answer</li> </ul>
<p>PR2.</p>	<p><b>ASK IF GA3=1,2,3 (YES) FOR MORE THAN ONE MOSQUITO-BORNE DESEASES (A-J)</b></p> <p><b>[MULTIPLE MENTIONS]</b> <b>[RANDOMIZE STATEMENTS]</b></p> <p>Where did you hear about mosquito-borne diseases?</p> <p><b>Please select all that apply</b> <b>[RANDOMIZE STATEMENTS]</b></p> <ul style="list-style-type: none"> <li>A. My pet's veterinarian</li> <li>B. My doctor</li> <li>C. Travel health clinic</li> <li>D. A pamphlet or handout</li> </ul>

	<p>E. Municipal government  F. Provincial government  G. Federal government  H. Local news  I. Friends or family  J. Internet search  K. Social media  L. Advertisement  M. Other - Please specify: [Anchor]  N. I can't recall [Anchor; single mention]</p>	
PR3.	<p><b>ASK ALL</b></p> <p>[SINGLE MENTION]</p> <p>To the best of your knowledge, have mosquito-borne diseases been reported in your area (in animals, birds, or humans)?</p> <ul style="list-style-type: none"> <li>• Yes</li> <li>• No</li> <li>• I don't know</li> </ul>	
<b>Preventative Measures: Knowledge + Behaviours</b>		
PM1.	<p><b>ASK ALL</b></p> <p>[SINGLE MENTION GRID]</p> <p>Have you or someone you know been...</p> <p><b>STATEMENTS (RANDOMIZE):</b></p> <p>A. ...diagnosed with a mosquito-borne disease?  B. ... bitten by a tick?</p> <p><b>RESPONSE OPTIONS (IN ORDER)</b></p> <ol style="list-style-type: none"> <li>1. Yes</li> <li>2. No</li> <li>3. Prefer not to answer</li> </ol>	
PM2.	<p><b>ASK IF PM1_A=1</b></p> <p>[SINGLE MULTIPLE]</p> <p>Which mosquito-borne disease was it?</p>	

	<p><b>RANDOMIZE:</b></p> <ul style="list-style-type: none"> <li>A. Dengue</li> <li>B. Zika</li> <li>C. West Nile Virus</li> <li>D. Eastern equine encephalitis</li> <li>E. Oropouche virus</li> <li>F. California serogroup</li> <li>G. Chikungunya</li> <li>H. Malaria</li> <li>I. Yellow fever</li> <li>J. Japanese encephalitis</li> <li>K. I don't know <b>[ANCHOR LAST]</b></li> </ul>	
<p>PM3.</p>	<p><b>ASK IF PM1_A=1</b></p> <p>How did you, or the person you know, find out that you/they had a mosquito-borne disease?</p> <ul style="list-style-type: none"> <li>• OPEN TEXT BOX</li> <li>• Prefer not to answer</li> </ul>	
<p>PM4.</p>		<p><b>ASK ALL</b></p> <p><b>[SINGLE MENTION]</b></p> <p>What do you think is the best way to remove a tick attached to your skin or someone else's skin?</p> <p><b>RESPONSE OPTIONS (RANDOMIZE)</b></p> <ul style="list-style-type: none"> <li>A. With tweezers</li> <li>B. Twisting it off</li> <li>C. Flicking it</li> <li>D. Squishing it</li> <li>E. Other - Please specify:</li> <li>F. I don't know</li> </ul> <p><b>INFO BOX AFTER ANSWER SUBMITTED:</b></p> <p><b>Tick Removal</b></p> <p>To remove a tick, use clean, fine-point tweezers to grasp the head as close to the skin as possible and slowly pull straight out. Try not to twist or squeeze the tick. Ticks firmly attach their mouthparts into the skin which requires slow but firm traction to remove them.</p>
<p>PM5.</p>		<p><b>ASK ALL</b></p> <p><b>[MULTIPLE MENTIONS]</b></p>

		<p>After removing a tick, which of the following actions would you be most likely to take?</p> <p><i>Please select all that apply.</i></p> <p><b>RESPONSE OPTIONS (RANDOMIZE)</b></p> <ul style="list-style-type: none"> <li>A. Keep the tick in a container or bag and bring it to a health care professional</li> <li>B. Ask a friend/relative for advice</li> <li>C. Take a picture of the tick and submit it to eTick</li> <li>D. Consult a health care professional (doctor, nurse, pharmacist, etc.)</li> <li>E. Search for information online (Google, government websites, etc.)</li> <li>F. Monitor yourself for symptoms, including sign of a rash</li> <li>G. Dispose of the tick immediately</li> <li>H. Other - Please specify: [ANCHOR]</li> <li>I. Do nothing / no further action [ANCHOR]</li> <li>J. I don't know [ANCHOR]</li> <li>K. Prefer not to answer [ANCHOR]</li> </ul>
<p>PM6.</p>		<p><b>ASK IF Q4=2,3</b></p> <p>[SINGLE MENTION]</p> <p>Have you ever found a tick on your pet (e.g., dog, cat)?</p> <ul style="list-style-type: none"> <li>A. Yes</li> <li>B. No</li> <li>C. I don't know</li> <li>D. Prefer not to answer</li> </ul>
<p>PM7.</p>		<p><b>ASK IF PM6=1</b></p> <p>[SINGLE MENTION] [RANDOMIZE]</p> <p>What was the first thing you did with the tick?</p>

		<ol style="list-style-type: none"> <li>1. Throw it away</li> <li>2. Bring it to the veterinarian</li> <li>3. Take a picture to send to eTick</li> <li>4. Other, please specify:</li> </ol>
PM8		<p><b>ASK ALL</b></p> <p><b>[SINGLE MENTION]</b></p> <p>If a human vaccine for Lyme disease was available in Canada, would you consider getting it?</p> <ol style="list-style-type: none"> <li>A. Yes</li> <li>B. No</li> <li>C. I don't know</li> <li>D. Prefer not to answer</li> </ol>
PM9.	<p><b>ASK ALL</b></p> <p><b>[MULTIPLE MENTION GRID]</b></p> <p>What do you do to protect yourself and your family from...</p> <p><i>Select all that apply</i></p> <p><b>COLUMN (IN ORDER):</b></p> <ol style="list-style-type: none"> <li>A. ...mosquitoes?</li> <li>B. ...ticks?</li> </ol> <p><b>STATEMENTS (RANDOMIZE):</b></p> <ol style="list-style-type: none"> <li>1. Use insect repellent</li> <li>2. Wear light-coloured clothing</li> <li>3. Pull socks over pants</li> <li>4. Wear long-sleeved shirts</li> <li>5. Wear pants</li> <li>6. Wear a hat</li> <li>7. Wear insect-repellent clothing</li> <li>8. Walk on cleared paths or trails <b>[COLUMN B ONLY]</b></li> <li>9. Check body for ticks <b>[COLUMN B ONLY]</b></li> <li>10. Take a shower after coming back from outside <b>[COLUMN B ONLY]</b></li> <li>11. Wear or use netting <b>[COLUMN A ONLY]</b></li> <li>12. Other – please specify: <b>[ANCHOR]</b></li> <li>13. I don't take precautions <b>[ANCHOR]</b></li> <li>14. Prefer not to answer <b>[ANCHOR]</b></li> </ol>	
PM10.	<p><b>ASK IF PM9_A AND/OR PM9_B=1</b></p> <p><b>[MULTIPLE MENTION]</b></p> <p>Which type of insect repellent do you use?</p>	

	<p><i>Please select all that apply</i></p> <ul style="list-style-type: none"> <li>A. Chemical free/natural such as essential oils</li> <li>B. DEET</li> <li>C. Icaridin</li> <li>D. Candles/torches (e.g., citronella)</li> <li>E. Wearable repellent devices (e.g., wristbands, stickers, clip-on foggers)</li> <li>F. Sonic, heat dispersed, or light bulb repellents</li> <li>G. Coils</li> <li>H. Fans</li> <li>I. Nets/netting</li> <li>J. Smoke repellent</li> <li>K. Other</li> <li>L. I don't know</li> </ul>
<p>PM11.</p>	<p><b>ASK IF PM10=A,B,C</b></p> <p>[MULTIPLE MENTION] [RANDOMIZE]</p> <p>Where do you usually apply insect repellent?</p> <p><i>Please select all that apply</i></p> <ul style="list-style-type: none"> <li>A. Face</li> <li>B. Neck</li> <li>C. Hair</li> <li>D. Arms</li> <li>E. Hands</li> <li>F. Legs</li> <li>G. Feet</li> <li>H. Clothing</li> <li>I. Other – please specify:</li> <li>J. Prefer not to answer</li> </ul>
<p>PM12.</p>	<p><b>ASK IF PM9_A AND PM9_B≠1</b></p> <p>[MULTIPLE MENTION] [RANDOMIZE]</p> <p>Why don't you use insect repellent?</p> <ul style="list-style-type: none"> <li>A. Too expensive</li> <li>B. Contains chemicals</li> <li>C. Allergic</li> <li>D. Smell</li> <li>E. Damages clothing</li> <li>F. Don't need it</li> <li>G. Don't think it's effective</li> <li>H. Other, specify:</li> </ul>

	I. Prefer not answer	
PM13.	<p><b>ASK IF PM9_A=13 AND/OR PM9_B=13 I don't take precautions (for either ticks or mosquitoes)</b>  <b>[MULTIPLE MENTION GRID]</b></p> <p>Why haven't you taken steps to prevent...  Please select all that apply</p> <p><b>COLUMN:</b></p> <p>A. mosquito bites? [IF PM9_A=13]  B. tick bites? [IF PM9_B=13]</p> <p><b>STATEMENTS (RANDOMIZE):</b></p> <ol style="list-style-type: none"> <li>1. I don't have enough information</li> <li>2. It costs too much</li> <li>3. There's too much information to sort through</li> <li>4. I don't think I'll get bitten</li> <li>5. I don't think there are many mosquitoes where I live [COLUMN A ONLY]</li> <li>6. I don't think there are many ticks where I live [COLUMN B ONLY]</li> <li>7. I don't think mosquito-borne diseases are a serious problem [COLUMN A ONLY]</li> <li>8. I don't think tick-borne diseases are a serious problem [COLUMN B ONLY]</li> <li>9. Other – please specify: [ANCHOR]</li> <li>10. No particular reason / I just haven't [ANCHOR]</li> <li>11. Prefer not to answer [ANCHOR]</li> </ol>	
PM14.	<p><b>ASK IF Q5=1 OR 2</b></p> <p><b>[SINGLE MENTION]</b></p> <p>How aware are you of mosquitoes and mosquito-borne disease risks when travelling outside your area (city/town/province)?</p> <p>A. Very aware  B. Moderately aware  C. Not very aware  D. Not at all aware  E. Prefer not to answer</p>	
PM15.	<p><b>ASK IF Q5=3</b></p> <p><b>[SINGLE MENTION]</b></p>	

	<p>How aware are you of mosquitoes and mosquito-borne disease risks when travelling outside Canada?</p> <ul style="list-style-type: none"> <li>A. Very aware</li> <li>B. Moderately aware</li> <li>C. Not very aware</li> <li>D. Not at all aware</li> <li>E. Prefer not to answer</li> </ul>	
<p>PM16.</p>	<p><b>ASK ALL</b></p> <p><b>[SINGLE MENTION]</b></p> <p>Have you taken steps to reduce...</p> <p><b>STATEMENTS (IN ORDER):</b></p> <ul style="list-style-type: none"> <li>A. mosquitoes where you live or spend time?</li> <li>B. ticks where you live or spend time?</li> </ul> <p><b>RESPONSE OPTIONS (IN ORDER):</b></p> <ul style="list-style-type: none"> <li>1. Yes</li> <li>2. No</li> <li>3. I don't know</li> </ul>	
<p>PM17.</p>	<p><b>ASK IF PM16_A=1</b></p> <p><b>[MULTIPLE MENTION]</b></p> <p>What do you do to reduce mosquitoes where you live or spend time?</p> <p><i>Please select all that apply</i></p> <p><b>RESPONSE OPTIONS (RANDOMIZE)</b></p> <ul style="list-style-type: none"> <li>A. Remove standing water</li> <li>B. Replace water in bird baths</li> <li>C. Fix and replace screens in doors and windows</li> <li>D. Keep gutters clean</li> <li>E. Other Please specify:</li> </ul> <p><b>[ANCHOR]</b></p>	
<p>PM18.</p>	<p><b>ASK IF PM16_A=2</b></p> <p><b>[MULTIPLE MENTION]</b></p>	

	<p>Why haven't you taken steps to reduce mosquitoes where you live or spend time?</p> <p><i>Please select all that apply</i></p> <p><b>RESPONSE OPTIONS (RANDOMIZE)</b></p> <ul style="list-style-type: none"> <li>A. I didn't know it was possible</li> <li>B. Lack of information on what to do</li> <li>C. I don't have enough time</li> <li>D. It's too expensive</li> <li>E. Mosquitoes are not a serious issue</li> <li>F. No need [ANCHOR]</li> <li>1. Other – please specify: [ANCHOR]</li> <li>G. Prefer not to answer [ANCHOR]</li> </ul>	
<p>PM19.</p>		<p><b>ASK IF PM16_B=1</b>  <b>[MULTIPLE MENTION]</b>                  What do you do to reduce ticks where you live or spend time?  <i>Please select all that apply</i>  <b>RESPONSE OPTIONS (RANDOMIZE)</b></p> <ul style="list-style-type: none"> <li>A. Mow the lawn frequently</li> <li>B. Remove piles of leaves, tree brush, long grass, and weeds</li> <li>C. Prune shrubs and trees</li> <li>D. Use wood chip or mulch surfaces and/or borders</li> <li>E. Other Please specify: [ANCHOR]</li> </ul>
<p>PM20.</p>		<p><b>ASK IF PM16_B=2</b>  <b>[MULTIPLE MENTION]</b>                  Why haven't you taken steps to reduce ticks where you live or spend time?  <i>Please select all that apply</i>  <b>RESPONSE OPTIONS (RANDOMIZE)</b></p> <ul style="list-style-type: none"> <li>A. I didn't know it was possible</li> <li>B. Lack of information on what to do</li> </ul>

		<p>C. I don't have enough time                  D. It's too expensive                  E. Ticks are not a serious issue                  F. No need [ANCHOR]                  G. Other – please specify:                  [ANCHOR]                  H. Prefer not to answer [ANCHOR]</p>
<b>QFILTRE2</b>		
<b>Workplace Exposure and Information</b>		
WE1.	<p><b>ASK IF Q10=1</b>  <b>[SINGLE MENTION GRID]</b>                  You mentioned that your job requires you to spend most or all of your working hours outdoors. Has your employer provided any information or training on the steps to take to avoid...</p> <p><b>STATEMENTS (IN ORDER):</b></p> <p>A. mosquito bites?                  B. tick bites?</p> <p><b>RESPONSE OPTIONS (IN ORDER):</b></p> <p>1. Yes                  2. No                  3. I don't know                  4. Prefer not to answer</p> <p><b>INFO BOX AFTER ANSWER SUBMITTED:</b>  <b>Resources for outdoor workers</b>                  The Canadian Centre for Occupational Health and Safety, in partnership with the Public Health Agency of Canada, offers resources on mosquito-borne and tick-borne diseases — including infographics, videos, and tip sheets — available on their website.</p>	
WE2.	<p><b>ASK IF Q10=1</b>  <b>[SINGLE MENTION]</b>                  Does your employer provide any personal protective equipment, such as insect repellents, insecticides, or protective clothing?</p> <p>A. Yes                  B. No                  C. No, but I use my own, please specify:                  D. I don't know                  E. Prefer not to answer</p>	

WE3.	<p><b>ASK IF Q10=1</b>  <b>[SINGLE MENTION GRID]</b>  How well informed are you about how to protect yourself from...</p> <p><b>STATEMENTS (IN ORDER):</b></p> <p>A. mosquito bites and mosquito-borne diseases while on the job?  B. tick bites and tick-borne diseases while on the job?</p> <p><b>RESPONSE OPTIONS (IN ORDER)</b></p> <p>1. Not at all informed  2. Not very informed  3. Moderately informed  4. Very well informed  5. Prefer not to answer</p>
<p><b>Mosquitoes and mosquito-borne diseases.</b></p>	
QINFO1.	<p>For the following section, please focus solely on mosquitoes and mosquito-borne diseases.</p>
M1.	<p><b>ASK ALL</b>  <b>[SINGLE MENTION]</b>  Are you aware that vaccines and medications are available for some mosquito-borne diseases?</p> <p>A. Yes  B. No  C. Prefer not to answer</p>
M2.	<p><b>ASK ALL</b>  <b>[SINGLE MENTION]</b>  Would you consider vaccines and medications when travelling to countries where mosquito-borne diseases are common?</p> <p>A. Yes  B. No  C. Not sure  D. I never travel outside of Canada  E. Prefer not to answer</p>
M3.	<p><b>ASK ALL</b>  <b>[SINGLE MENTION GRID]</b></p>

	<p>Do you believe you are at risk of mosquito-borne diseases...</p> <p><b>STATEMENTS (RANDOMIZE):</b></p> <p>A. ...during your regular day-to-day activities, such as running errands?</p> <p>B. ... when you're outdoors, such as walking/golfing/hiking?</p> <p>C. ... when you travel to other countries?</p> <p><b>RESPONSE OPTIONS (IN ORDER):</b></p> <p>1. High risk</p> <p>2. Medium risk</p> <p>3. Low risk</p> <p>4. No risk</p> <p>5. I don't know/ Not applicable</p>	
M4.	<p><b>ASK ALL</b> <b>[SINGLE MENTION]</b></p> <p>When you are bitten by a mosquito in Canada, how concerned are you about getting sick?</p> <p>A. Very concerned</p> <p>B. Somewhat concerned</p> <p>C. Not very concerned</p> <p>D. Not at all concerned</p> <p>E. I don't know</p> <p>F. Prefer not to answer</p>	
M5.	<p><b>ASK ALL</b> <b>[SINGLE MENTION]</b></p> <p>When you are bitten by a mosquito outside of Canada, how concerned are you about getting sick?</p> <p>A. Very concerned</p> <p>B. Somewhat concerned</p> <p>C. Not very concerned</p> <p>D. Not at all concerned</p> <p>E. I don't know/Not applicable</p> <p>F. Prefer not to answer</p>	
QINFO2	<p>The questions specifically about mosquitoes or mosquito-borne diseases is now done. The following questions may address different both mosquitoes and</p>	

	mosquito-borne diseases, as well as ticks and tick-borne diseases. Please read the questions carefully.
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<b>GENERAL QUESTIONS – Information</b>	
GE1.	<p><b>ASK ALL</b> <b>[SINGLE MENTION GRID]</b> Have you ever looked for information...</p> <p><b>STATEMENTS (RANDOMIZE):</b></p> <p>A. ...on mosquito-borne diseases? B. ...on tick-borne diseases?</p> <p><b>RESPONSE OPTIONS (IN ORDER):</b></p> <p>1. Yes 2. No, but I plan to 3. No, and I don't plan to 4. Prefer not to answer</p>
GE2.	<p><b>ASK IF GE1_A=2,3 AND/OR GE1_B=2,3</b> <b>[MULTIPLE MENTION GRID]</b> Why haven't you looked for information on... <i>Please select all that apply</i></p> <p><b>COLUMNS (IN ORDER):</b></p> <p>A. ...mosquitoes or mosquito-borne diseases? <b>[IF GE1_A=2,3]</b> B. ...ticks or tick-borne diseases? <b>[IF GE1_B=2,3]</b></p> <p><b>STATEMENTS (RANDOMIZE):</b></p> <p>1. I don't have any need for this information 2. I didn't know this type of information was available 3. I wasn't aware of mosquito-borne diseases before this survey <b>[COLUMN A ONLY]</b> 4. I wasn't aware of tick-borne diseases before this survey <b>[COLUMN B ONLY]</b> 5. I don't know where to get the information 6. I don't have time to look for this information 7. I have trouble understanding this type of information 8. No need; I am already well-informed about mosquito-borne diseases <b>[COLUMN A ONLY]</b></p>

	<p>9. No need; I am already well-informed about tick-borne diseases [COLUMN B ONLY]</p> <p>10. Other – please specify: [ANCHOR]</p> <p>11. Prefer not to answer [ANCHOR]</p>
<p>GE3.</p>	<p><b>ASK IF GE1_A=1 AND/OR GE1_B=1</b>  <b>[MULTIPLE MENTION GRID]</b>          What information about...  <i>Please select all that apply</i></p> <p><b>COLUMNS (IN ORDER):</b></p> <p>A. ...mosquito-borne diseases have you looked for? [IF GE1_A=1]          B. ...tick-borne diseases have you looked for? [IF GE1_B=1]</p> <p><b>STATEMENTS (RANDOMIZE):</b></p> <ol style="list-style-type: none"> <li>1. What are the symptoms</li> <li>2. How are they spread</li> <li>3. How can I protect myself</li> <li>4. What treatments are available</li> <li>5. Other – please specify: [ANCHOR]</li> <li>6. Prefer not to answer : [ANCHOR]</li> </ol>
<p>GE4.</p>	<p><b>ASK ALL</b>  <b>[SINGLE MENTION]</b>          Before today, had you ever heard of eTick?</p> <p>A. Yes, and I've used it          B. Yes, but I've never used it          C. No          D. Prefer not to answer</p> <p><b>INFO BOX AFTER ANSWER SUBMITTED:</b>  <b>eTick</b> is a free image-based tick identification tool. You can submit a photo of the tick you found, and eTick will:</p> <ul style="list-style-type: none"> <li>• Help identify the type of tick</li> <li>• Contribute to tracking and monitoring ticks across Canada</li> <li>• Provide information on how to prevent tick bites</li> </ul>
<p>GE5.</p>	<p><b>ASK ALL</b>  <b>[MULTIPLE MENTION]</b>  <b>[RANDOMIZE]</b></p>

	<p>In general, where do you get information on health-related issues?</p> <p><i>Please select all that apply</i></p> <ul style="list-style-type: none"> <li>A. Google or other search engine</li> <li>B. Artificial intelligence (such as ChatGPT)</li> <li>A. Health care professional such as a doctor/nurse practitioner</li> <li>B. Pharmacist/pharmacy</li> <li>C. Government information including local/municipal, provincial and federal</li> <li>D. Medical websites</li> <li>E. International resources</li> <li>F. Friends &amp; Family</li> <li>G. Social Media (e.g., Facebook, X, Instagram)</li> <li>H. Influencers</li> <li>I. Other – please specify: <span style="color: red;">[ANCHOR]</span></li> </ul>
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**QFILTRE3**

## Demographics

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These last few questions will be used for statistical purposes only.

**Q12. Do you identify as any of the following?**

Select all that apply

01 Black

02 East Asian

03 Indigenous (First Nations, Inuk/Inuit, Métis)

04 Latin American

05 Middle Eastern

06 South Asian

07 Southeast Asian

08 White

09 Other (please specify)

99 Prefer not to answer

**Q13. Which of the following best describes your total household income last year, before taxes, from all sources for all household members?**

01 Under \$20,000

02 \$20,000 to just under \$40,000

03 \$40,000 to just under \$60,000

04 \$60,000 to just under \$80,000

05 \$80,000 to just under \$100,000

06 \$100,000 to just under \$150,000

07 \$150,000 and above

99 Prefer not to answer

**Q14. What language do you speak most often at home?**

01 English

02 French

03 Other

99 Prefer not to answer

Completion Page

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That concludes the survey.

Thank you very much for your feedback.

The survey results will be announced in the [Zoonoses Bulletin](#) once they are available on the [Library and Archives Canada](#) website in the coming months.

We invite you to subscribe to the [Zoonoses Bulletin](#) — an email list from the Public Health Agency of Canada that provides regular updates on zoonotic diseases, including those transmitted by ticks and mosquitoes.

For information on:

- [Tick bite prevention and tick-borne diseases](#)
- [Mosquito bite prevention and mosquito-borne diseases](#)
- [Resources for outdoor workers - Canadian Centre for Occupational Health and Safety](#)
- [Tick identification - eTick](#)