



Maren Gamble:

You're working outside. There are bushes along the trail, long grass at the jobsite, trees overhead. You probably don't think twice about it, but something as small as a poppy seed might be thinking about you.

Announcer:

It's time for the *IHSA Safety Podcast*.

Maren Gamble:

Welcome to the *IHSA Safety Podcast*. I'm your host, Maren Gamble. Joining us now to talk about tick risks in Ontario is Dr. Curtis Russell, Senior Program Specialist at Public Health Ontario. Dr. Russell, welcome.

Dr. Curtis Russell:

Thank you for having me.

Maren Gamble:

Thanks for coming. So, Dr. Russell, as a senior program specialist at Public Health Ontario, you're involved in a lot of initiatives to help bring research evidence to the frontline for the public. Specifically, I've noticed that your research focuses on vector-borne disease, West Nile and Zika virus, Lyme disease, and general insect biology. So, with the increasing conversation about ticks in Ontario that we at IHSA have been noticing, you seemed like just the person to ask to help us get to the heart of tick risks in Ontario. So my first question speaks to whether that increased conversation we've been hearing is even warranted. What kind of key trends is public health Ontario seeing in tick populations and Lyme disease across Ontario? And what do these trends mean for people working outside today?

Dr. Curtis Russell:

So in general, every year—because these ticks are actually somewhat weather dependent, and as you know, weather can vary from year to year—so we can get ebbs and flows in the number of ticks we see and the number of human cases. However, if you look over the years, we generally see an increasing trend of more black-legged ticks and more human cases of Lyme disease. It is very important to note though, when you are talking about Lyme disease and ticks, there's only one tick in Ontario that we're concerned with. That's called the black-legged tick or the deer tick. Those two names are the same species of tick. That tick really likes brushy, wooded areas. The biggest threat to these ticks is if they dry out or desiccate, they die. So they really like leaf litter. So, that leaf litter, that's kind of a nice, moist environment, so when it gets too hot out for them, they go back down in there. So, that's the way we always say these ticks you typically see in brushy wooded areas that are deciduous. So, the trees that lose their leaves, that's where that leaf litter is.

So deciduous, mixed deciduous habitats is where we see them. So if you were to go onto our vector-borne disease tool and look at our Lyme disease risk map, it shows where the black legged ticks that we know they're established, most of the time you see them along the north shores of Lake Erie, Lake Ontario, the St. Lawrence River, and kind of up in northwestern Ontario because that's where that habitat is that's good for them.

Maren Gamble:

I see. Okay. And so what would you say perhaps to someone in Ontario who thinks that ticks really aren't a risk in their area of Ontario?

Dr. Curtis Russell:

Well, we do see more of these black-legged ticks spreading across. If you were to say, look at our risk maps from say almost 10 years ago, there was only a few pockets that we knew where they are now, they're stretching across most of southern Ontario. We do see a general increasing trend in Lyme disease cases, especially in those areas where we know that ticks established. So they are here and these ticks too, they also feed on migratory birds. So why some of those other spots in Northern Ontario may not be the best habitat for them, they can get brought up there and you might experience them, but it's more of these other habitats where they definitely get established. So we are seeing more. It's just to do your personal protection and know when you're outside to be careful when you're out there.

Maren Gamble:

Gotcha. So you mentioned that desiccating, the drying out, is a major risk for ticks. So are certain seasons or weather conditions then increasing the likelihood of tick encounters?

Dr. Curtis Russell:

Yes. So there's lots of different factors that contribute to anything that lives in an environment. However, because we don't have the cold winters like we used to have, we are getting that climate change that allows for warmer temperatures, that allows them to get established in new areas and to spread. Also, those new habitats that are warmer, it creates more of that habitat, but it's also good for their mammalian hosts. They feed on white-footed mice, they feed on white-tailed deer. So, we actually have our human influences on the habitat too also make it good for those mammals to have large numbers of those, which is also very good for the ticks. Seasonality-wise, we usually like to say if it's above zero and there's no snow on the ground, these ticks can actually be out.

Maren Gamble:

Wow, that's a big season.

Dr. Curtis Russell:

Yes. Now at those very low temperatures, I'm going to look funny right now, but they're very slow and lethargic, because they're still influenced by the temperature to how fast they can move, but they can be out. When we look for these ticks, we usually see—so, it goes egg, larva, nymph, adult. So larva are

kind of like the young ones, the nymph are the midlife, and then the adult are the final stage. We usually see most of our adult-tick submissions are spring and fall because that's when they're out. And then the nymphs typically exist in the middle of the summer months. So if you were to look at our tick submissions, most of our ticks that we get submitted from the public come in spring and fall because those ones are about the size as a sesame seed, the adults, and you can see them a bit more.

The nymphs, who are the poppy-seed size ones are in the summer. So we see most of our submissions spring and fall, and the summertime is actually when we have most of our Lyme disease cases. That's when most of the time people are exposed because the nymphs are so tiny, people don't know that they're on them. When a black-legged tick gets on you, not all of them carry Lyme disease, but if it does have Lyme disease on it, it actually has to bite you and be biting you for at least 24 hours before it can transmit the pathogen. So those little ticks are so tiny that you don't notice them. And I know we say people pick a poppy seed, but until you actually see a nymph, everybody, when I show someone a nymph, when I go out and look for them and show someone, they can't believe how small they are.

So those nymphs, these ticks like to bite you around your hairline, your armpits, your groin area, behind your knees. So when they get into those areas, they're so small they're hard to notice. So I'm sure we'll get into it, but that's where the personal protection and the tick checks come in and are very important.

Maren Gamble:

And so based on the data that Public Health Ontario has and of course your experience, what kind of activities, environments, and we talked a bit about times of year—but what kind of things are going to put people at the greatest risk of tick exposure? I saw there was a Ticks in Ontario report that was produced, so I think there's probably some great data in there as well.

Dr. Curtis Russell:

Right. So, the big thing with these ticks is, especially the black-legged ticks, they're in brushy wooded areas. So if you're going into that environment, then you are going into that. A lot of people think these ticks are on top of the trees and they fall down or they come crawling to you. They don't even really have eyes to see you. What they do is they're down in the leaf litter where they like to be nice and moist. And when it's time, the temperatures are right, they'll come out, they crawl off in the litter, and they actually just sit there with their arms out. They do a little bit of wave when you get close. So when you walk by and come into contact with them, they grab on and then they're on you. So you almost have to go into them.

Maren Gamble:

So it's like my toddler in the kitchen asking for “uppies”, right? Yeah.

Dr. Curtis Russell:

One analogy I use a lot is, you know when you go hiking and you get burrs on you? All those plants' spiky things? You have to go into contact with them. They don't come to you. So that's the same idea when we're talking about these black legged ticks. So, depending on what your job is, if you're in the middle of a trail and you're not going into that vegetation, even if there's a lot of ticks there, you're not going to

see them because they don't like that dry environment. However, based on the luck we're having today, some of you will go out into that environment, and that's where the personal protection comes in. So depending what your requirements are and depending what clothing you are or aren't allowed to wear, the basic thing we say is tuck everything in, wear light-colored clothing, and then use a repellent such as a DEET or a Icaridin.

Just make sure you follow the manufacturer's label. The reason we say everything's tucked in is if you have your pants tucked in, your belt line tucked in, the ticks have to come all the way up here to your hands before they can get on you so you have a better chance of noticing. That's why the light-coloured clothing. If it's light coloured, because the ticks are kind of darker-ish, brown-ish, you can kind of see them. So that's where the light coloured. And then the ticks don't like those repellents. So usually you would spray that on your clothing to help reduce the risk. So that's when you're out in the environment. As soon as you come out of that, say you're down a trail doing a powerline or something, once you come off that trail, we say you do a tick check. So that's when you then start to look.

Is there anything on your clothing? Where are they? Kind of tick hairline. We say we use the buddy system. I'll let you define who your buddy is, but have them check your backside. Have them look at your hairline, behind your ears, check down your pants, like all the folds where you've tucked your pants in, have them check everything for you.

Maren Gamble:

So you would check before you even leave the location?

Dr. Curtis Russell:

I would check even before I leave the location, because depending what you're doing again, if you're getting in the truck and driving for a couple hours, that gives them time to crawl around. So do that tick check to get them off right away. And then when you get home, we recommend you then have a bath or a shower. The reason for that is all your clothes are off again and you can then check those other areas where those ticks might be. And then hopefully even if they're not even biting, they might get washed off. So I do like to crawl around for a little bit to find those locations. And then your clothing, if you do put them in the dryer, the high heat in the dryer will kill them.

Maren Gamble:

Okay. Those are a lot of the things I've been wondering about myself too, so thank you for that. I know there's some tools that Public Health Ontario has available. I've been poking around on the website a little bit, and I noticed things like the passive tick submission map, and it shows an established risk areas map. How could we maybe use those kind of tools to assess and manage our risk? Are those things that we could use?

Dr. Curtis Russell:

Yeah, so that tool is showing you where we know black-legged ticks are established. What we mean by established is, we know they're living there and they're cycling there year after year after year, because there is sometimes, like I said, they will come in on migratory birds. So we call those ones that say drop

off in Northeastern Ontario, but they don't get established. Those are adventitious ticks. So you have a chance to see the tick almost anywhere, especially if you're in the right habitat. But those maps kind of give you an idea of where those ticks definitely are established. And what we've done is you'll see a lot of circles. We've put a buffer around that based on work done by other colleagues at the national level in Nova Scotia. They said, okay, if we know the ticks live here, how much can their mammalian hosts move them out of that area? And so they can move them around 20 kilometers. So it's about a 20-km buffer. The important thing to note is that map is showing you where the ticks are established. It doesn't give you the level of how much the pathogen is in them.

We have some other maps that show levels by health unit, but the thing is just showing that those ticks are established. The literature does show once the black-legged ticks are there, it's very hard to get rid of them. And eventually the bacteria, the Lyme disease bacteria will, in three to five years, move in. So once you know the ticks are there, there is risk there. But anytime you're in a habitat, it's always good. Yeah. So that kind of shows you. So if you look at that map, it's kind of like we said, it's north shores, Lake Ontario, Lake Erie, St. Lawrence, in that pocket. And that almost really lines up with the habitat.

Maren Gamble:

Okay. Very helpful. Very, very interesting. You touched on some of the preventative strategies that people can use having everything tucked in, the light colors, the sprays, what is it called? The deterrents?

Dr. Curtis Russell:

The repellents.

Maren Gamble:

The repellents. Thank you. That's the word. Is there anything else that you would suggest in terms of preventative measures that we can take?

Dr. Curtis Russell:

Those are the big things. If you're talking about preventive measures, say around your household, a lot of it circulates around the household more as a physical barrier because they don't like to dry out. So if you keep your lawns really short, they don't want to go into that. Some places too, you can put a barrier like a one-metre wide wood chips around your property, because they don't like going into that. Again, they don't like that dry environment. Keeping your brush down low, keeping any play areas outside of those wooded, brushy areas, keeping it more on the short grass are good preventions. And then the other thing too is if you do get a tick on you and they are biting you, a lot of people think these black ticks in general bury under your skin and get under you. They don't do that. They just only stick their mouth parts in. The rest of the body always stays out. So the big thing is trying to get those ticks off. So we usually say use fine forceps or fine tweezers. So when the tick is in, you're trying to get right there to pull it straight out. And so if you can, you can get them out. If you are not comfortable doing that, you can also go see your health-care provider to try to remove them. But all those other things of twisting the tick, burning it with a match, covering it in Vaseline or other kind of to-go, don't do any of those. It's find forceps, grab it straight as possible and pull it out. Sometimes the mouth parts will break off in your

skin. You would then treat that like having a sliver. The main body of the tick is out. So the big things are because for Lyme disease, these ticks have to be biting you for at least 24 hours.

That's why you do all those tick checks right away is to try to get under that window. Where if you do know you've been out in the environment and a day later or something, you do notice a tick on you, that's when you can then go see your health-care provider and just make sure you give them that history of where were you? What were you doing? How long was the tick on for?

Maren Gamble:

Amazing. I'm learning incredible things here, and I have to say how many boxes or light bulbs are going off for me because I happen to live in a bit of a rural area that sounds like an ideal habitat for ticks. And I have found two ticks on myself this year already, which I have had to remove. And so I've really been interested in some of the stuff you're saying in terms of the prevention that I can do around my house that isn't in place and can maybe help to avoid some more of those. I did happily, I think, do the removal properly according to what you're saying, and I did also go see my health-care provider. There's a couple check boxes, but it's nice to hear some of the additional strategies there as well. When it comes to ticks, I think one of the big reasons that we talk about ticks is because of Lyme disease and Lyme disease does get a lot of attention around it.

So what do people, workers, supervisors, but people in general need to know about Lyme disease? And then are there other tick-borne diseases in Ontario that we should also be aware of?

Dr. Curtis Russell:

So we do have some other, so we call them reportable diseases. So if someone does get infected and they are a case with that infection, they do get reported to the Ministry of Health so that we can track and know them. So we do have other ones called the babesiosis, anaplasmosis, and Powassan virus. The one thing with all these other pathogens is they are all transmitted by the black-legged tick. So the measures you would do are the same. It's that try to stay out of the brushy wooded area. If you are in the brushy wooded area, all those personal protections and then all those tick checks. So the same idea for those other pathogens is the same thing, trying to reduce your risk. The same thing too we should note, we have other tick species in Ontario and some of them live in different habitats, but the things that we're saying for your personal protection, you could also do if you're just out in a grassy field.

We have also things called the American dog tick. The two main species of tick that we see in our submissions, almost half-and-half is the black-legged tick or the American dog tick. The American dog tick does not transmit Lyme disease, but there is lots of those ticks. So if you are in knee-high, brushy areas, grassy areas, you can still do these personal protections. The dog tick, you find more in those fields kind of areas than the wooded areas, but they can both exist in those niche habitats where the fields abut to the forest and that. So I still say it's good to practice your personal protection if you're noticing that. And then if you're concerned about what ticks and stuff you have, you can actually then submit them for identification. So if you find a tick, you can actually go to your health-care provider or your local health unit and they will submit it to Public Health Ontario where it will get it identified.

Another really good option is we've partnered with eTick. So, etick.ca. They have a website and they also have an app. And you can actually take a picture of the tick. It'll be sent to an expert who within 24 hours will tell you what it is.

Maren Gamble:

That's neat.

Dr. Curtis Russell:

So eTick is a really good way, because it gives you a very quick response of what it is. They also have a very good website that shows you all the different species of ticks and where their people are finding them in Ontario.

Maren Gamble:

That's neat.

Dr. Curtis Russell:

And across Canada.

Maren Gamble:

And so you talked about potentially submitting your tick. Why would you choose to submit? Is it if you're curious what kind it is, or?

Dr. Curtis Russell:

Curious what kind it is, but the main thing is more for on our level so we can see where the trends are of where the ticks are coming. So hypothetically, if we had a whole bunch of black-legged ticks being submitted from an area that we weren't aware of, it can give us that thing to then go start and looking for them. Big thing to note too, it's good you brought it up, is if you have ticks on you, and you know what the tick is, and you're concerned about your health, still see your health-care provider and just tell them you were in a tick environment. Because hypothetically, if you're in that transition zone and you find a dog tick on you, but you miss the nymph black-legged on the back. So it's more that signs and symptoms, how are you feeling? It's that still exposure.

Maren Gamble:

Interesting.

Dr. Curtis Russell:

We want to know where the trends are, where they're maybe being established or where the different ones are coming from. But on a personal health level, it's more, were you exposed to ticks? What were you doing? How were you feeling? And then let your health-care provider make that decision.

Maren Gamble:

That's a good point. So in theory, I could have taken my own personal tick buddies to public health for submission this year.

Dr. Curtis Russell:

Yeah. So you could have taken it to your local health unit, your health-care provider. But the one thing nice about eTick is you don't have to go anywhere. You can take the picture and you get a very fast result.

Maren Gamble:

Okay, that's neat. Well, I mean, hopefully I don't have to try it, but if it comes up again, that would be where I'd go to. Yeah.

Dr. Curtis Russell:

Right.

Maren Gamble:

So what do we need to know about Lyme disease? What is Lyme disease?

Dr. Curtis Russell:

So Lyme disease is a bacterial infection and it is transmitted by ticks. In Ontario, it's only transmitted by the black-legged ticks. And it's not a human-to-human transmission, it's from getting these ticks that have to be biting you for more than 24 hours. So that's the big things to note about what is Lyme disease. And because it is a bacterial infection, if you get it and get treated, you can get it again. So it's always good to keep up that personal protection and that tick watch and keep an eye on what you're doing.

Maren Gamble:

I'm also curious if you can talk about any myths or misconceptions that you see about ticks and Lyme disease that it might be good to clear up while we're talking to everybody.

Dr. Curtis Russell:

I think the big things with the ticks is they think they can either fly or jump or they're up on top of the trees and they're dropping down on you. None of those are actually really true. Like I said, the black-legged ticks aren't super mobile. They crawl on the vegetation and they just wait. Ticks live a lot longer than people thinks. A mosquito might live, say, a few months. These ticks, for them to get through their full life cycle, to go from egg to adult under perfect conditions takes two years. But if they don't get a blood meal, they can actually wait for the next year. So it can actually take them two to five years. So they're not a fast-moving creature. They're just waiting for you. When something comes along, they're going to hitch on. So the big thing is they don't move all over the place.

I remember one person told me, oh, it was on me, and then it jumped from me to my son, and then it jumped to another person. I'm like, all right, that's jumping around. You might have fleas or something, but it's not a tick. They don't really move like that. So you have to come in contact. So that personal protection and limiting your exposure in those environments is really key.

Maren Gamble:

That's a big deal.

Dr. Curtis Russell:

And they don't burrow down and all those kind of things.

Maren Gamble:

Okay. Those are good to know. You mentioned a couple resources. I think I threw a couple resources out quickly. Where would you suggest that people listening go to find out more about ticks about this topic? Are there any resources that they could check out?

Dr. Curtis Russell:

Yeah, so I think the big thing is the Ontario Vector-Borne Diseases Tool on Public Health Ontario. That's where we have our different maps to show you where the ticks are and where the trends are, what that's going on. If you look at etick.ca or their app, they also show you numbers. That's how you submit your ticks. If you just Google ontario.ca and through our Lyme disease page, we have our tick-borne diseases that shows you what we have, how to remove a tick. There's the Tick Toolkit. It's partnered with eTick in that they actually can show you different ways to remove the tick as well.

Maren Gamble:

Beautiful. Well, thank you. When I started to dig into some of the research before we talked today, I was amazed by how many resources you can stumble across. So it's kind of nice to be able to focus in on here's some great ones to start with. I appreciate that. Before we wrap up today, after I've learned a ton of useful information and I'm going to be making some changes out back afterwards, but if you could give one key piece of advice to the people listening today to help prevent tick-related illness this summer, what's your one big takeaway from everything we've said?

Dr. Curtis Russell:

I think the big thing is that personal protection. If you don't get the ticks on you, you've pretty much negated your risk. So we always joke it's not the coolest looking thing, but tuck everything in. light-coloured clothing. Use your repellents, and then do that tick check. If you can get the ticks off and you've never even get them on you, you've then pretty much significantly reduced your risk.

Maren Gamble:

Awesome. Well, thank you, Dr. Russell, for joining us today, and thanks to our listeners for tuning into our episode on ticks. Be sure to "like" us and subscribe on your podcast channel and reach out to us at

podcast@ihsa.ca with your questions or ideas for future episodes. As always, visit ihsa.ca for a wealth of health and safety resources and information.

Announcer:

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