

PREVENTING TICK BITES

1. Organisation involved

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2. Description of the case

2.1. Introduction

Every year, tens of thousands of people see their doctor about a tick bite and that number is rising. They may be tiny creatures, but their bite can have severe consequences. Tick bites can transmit Lyme disease, a bacterial infection that initially produces flu-like symptoms, but if not treated promptly with antibiotics can damage the nervous system, the brain, skin, joints and even the heart.

Ticks are parasitic arachnids that attach themselves to passing animals and humans to suck blood, leaving the host when sated. They look like tiny spiders and are approximated 1-3 mm in size swelling up to about 1 cm when full of blood. Immature ticks (nymphs) are probably the main transmitters of infections in humans. They are easily ignored because they are so small (no bigger than a pinhead). Ticks are classified into two groups, hard ticks, which have shells and soft ticks, which do not.

Ticks live in long grass and bushes within woodland, dunes, meadows, grazing land, heathland, parks and gardens. They are present throughout the year but become most active when the temperature rises above 8-10 degrees Celsius, with most tick bites on people occurring between March and October. There has been a sharp rise in tick numbers in northern Europe in recent years.

A tick can only infect someone if it is itself infected with the *Borrelia burgdorferi* bacterium that causes Lyme disease. The infection is only transmitted if the tick has been attached to the skin for a long period of time but if the tick is removed within 20 hours, the probability of it transmitting the bacterium is very low. However, more and more people are becoming ill as a result of a tick bite; 75,000 people a year see their doctor about the problem.

Workers in the agricultural and 'green' sectors, including forestry and horticulture, are particularly exposed to ticks. For the employer, tick bites can have financial consequences as a result of lost production or time off work due to illness.

Much can be done to prevent tick bites but due to a lack of awareness, precautions are rarely taken. Stigas decided to address this by setting up a website to disseminate good practice advice and tips for avoiding and treating tick bites.

2.2. Aims

Stigas aims to share knowledge and disseminate information to help people detect and treat tick bites, and to avoid being bitten in the first place.

2.3. What was done, and how?

Stigas discussed the situation with relevant parties including safety, health and welfare services, research institutes, universities, employers and the patients' association, and formed a 'National Green Lyme prevention working group'. This collaboration led to the development of an approach based on three strategies:

- raising awareness;

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- risk assessment; and
- the promotion of prevention policy.

To gain a greater understanding of the problem, worker questionnaires were sent out to agricultural companies. These questionnaires examined factors associated with tick bites and the development of Lyme disease, i.e.:

- the nature of the work being carried out at the time of the tick bite
- the location of the work
- behaviour
- clothing
- knowledge of preventive measures
- knowledge of the correct removal of ticks
- knowledge of Lyme disease
- tick bites and health complaints experienced

The study concluded that people working in heathland were at greatest risk, with 92% of respondents who work on heathland having experienced tick bites at some time or other. Contact with living or dead animals was also shown to increase the risk of tick bites. The removal of road-kill or dead game animals poses a particularly high risk. Health complaints reported by respondents included: rash or other skin abnormalities (47% of respondents), fatigue (46%), swelling, painful joints (28%), flu-like symptoms (27%), painful muscle/tendon attachments (22%) and loss of strength in the arms and legs (18%).

Based on the information gathered, in the spring of 2010 Stigas launched the website 'Week of the tick' (www.weekvandeteek.nl) (Figure 1) to make more people aware of the potential seriousness of a tick bite.

Figure 1. The 'Week of the tick' website (www.weekvandeteek.nl)



The website was designed to be easy to navigate and is aimed at employers, employees and the general public. It provides information about how to avoid a tick bite and Lyme disease as well as giving tips to employers to help them perform a risk assessment and evaluation. The website contains links to other websites and works as a portal for:

- centralising many kinds of information about ticks, especially related to working environments;
- gathering data about tick bites in one single place; and

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- referring visitors to the websites of relevant institutions when necessary (various useful websites where additional information is available, government websites, websites of national bodies and websites with information on infectious diseases and work, and also GGD Nederland's website, which provides regional information).

2.3.1. Prevention advice

Visitors to the website can find out how to identify a tick, and how to avoid being bitten. Tips include:

- Where possible, avoid dense vegetation and shrubs.
- Wear light-coloured clothing which completely covers the skin and which is tightly buttoned up. Consider spraying DEET¹-based products on socks, shoes and trousers or wear trousers that are impregnated with permethrin, a common synthetic chemical, widely used as an insecticide, acaricide, and insect repellent.
- Ensure your First Aid kit contains a tick remover.
- Apply insect repellent to uncovered skin.
- Check your body after being in the woods or areas of vegetation. Pay close attention to warm parts of the body, such as armpits, the groin, the anal cleft, the backs of the knees, the head (particularly children), behind the hair line and behind the ears.
- Shake clothes out or wash them after being in vegetated areas.
- Take a shower after being in the woods or areas of vegetation.
- Where possible, plan activities to take place between November and February when ticks are less active.

2.3.2. Treatment advice

The website provides the following advice for treating tick bites:

- Remove the tick as soon as possible. It is very important that this is done within 20 hours of being bitten.
- Do not use alcohol, iodine, oil or other agents before removing the tick. This will have no effect on removal.
- Get hold of the tick as close to your skin as possible, preferably with pointed tweezers or special tick tweezers. The easiest way to remove a tick is to unscrew it counter-clockwise. Pull the tick out slowly, making sure not to crush it.
- If a small piece of the tick's mouth is left in your skin, this is safe. This will come out of its own accord, just like a splinter.
- Disinfect the bite wound with 70% alcohol or iodine.
- Record the date on which you were bitten in your diary.
- Monitor the skin around the bite for up to 3 months after the tick bit you.
- Consult your general practitioner (GP) or company doctor immediately if:
 - A red patch on the skin forms which steadily grows in size,
 - You develop flu-like symptoms with fever and muscle pain,
 - You experience pain, loss of strength or tingling in your body,

¹ DEET is the abbreviated name for N,N-Diethyl-meta-toluamide, which is the most common active ingredient in insect repellents.



- You experience joint complaints.

2.3.3. Employers and employees

The 'Week of the tick' website also provides guidance and advice specifically for employers and employees. Employees can find tips and information on how to reduce the chances of being bitten and employers are provided with a link to a website <http://toolkits.loketgezondleven.nl>, where further information and toolkits are available.

These toolkits present information about preventing tick bites and Lyme disease. They support professionals working in the field of public health communication and help employers provide effective communication and protection for their employees. The toolkits have been carefully compiled with the assistance of a multidisciplinary working group and provide intermediaries with consistent and accurate communication materials: e.g. texts, photographs, illustrations. The communication resources are easy to download and use.

2.3.4. Further resources

Access to further resources is provided in the form of:

- Cumela Ticks Toolbox – tips and simple rules for the contract work sector.
- Kinderbrochure (booklet issued by GGD Kennemerland) – information about ticks and Lyme disease for children.
- 'Ticks, Lyme disease and the influence of climate change' – information provided by Wageningen University.
- Brochure issued by the Bosschap: further information about risks and the prevention of Lyme disease.
- National Institute for Public Health and Environment (Tick and Lyme disease toolkit for producing communication material).
- Flyers (leaflets) and brochures on Lyme disease produced by the N.V.L.P. (Dutch Association for Lyme Disease Patients), which are normally distributed via GPs.

2.3.5. Registering and reporting

Stigas encourages people to report any tick bites they may sustain so that they and other organisations can continue to conduct targeted research and provide accurate information.

Stigas provides a telephone call centre for people who have sustained a tick bite during the course of their work. Callers are given information about prevention measures, treatment advice and other relevant information about working in woods or areas of vegetation (such as Stigas leaflet about Lyme borreliosis, http://www.stigas.nl/download.php?file_id=1896). If Lyme borreliosis is suspected, callers are also referred to medical services.

If a worker becomes infected due to a tick bite sustained during his/her work, then this is classed as an occupational disease and they should also consult a website about occupational diseases <http://www.beroepsziekten.nl/>, which can be accessed via the 'Week of the tick' website. Workers are also asked to register their infection on the 'Week of the tick' website, as this helps Stigas to monitor the occupational significance of Lyme disease. These records are then used in the 'Tick protocol' which gives employers and company doctors an insight into how often suspected Lyme-related complaints arise. The 'Tick protocol' contains three forms which are available via the 'Week of the tick' website (http://www.weekvandeteek.nl/index.php?file_id=393).

The general public can subscribe to the Nature website (<http://www.natuurkalender.nl>), a national interactive website to monitor, predict, manage and communicate health risks from nature, for example annually recurring natural phenomena related to changes in weather and climate.



2.3.6. The 'Week of the tick' event

To draw further attention to the problem and to promote the 'Week of the tick' website, Stigas participates in a 'Week of the tick' event, during which they give out free information leaflets for employers and employees in the agricultural and green sectors affiliated to Colland.

The 'Week of the tick' event is held each year in early spring and involves a large group of collaborating organisations, such as government agencies, trade associations, universities and health service providers. All participating organisations act with the same message, but the information is focused on their target groups. Each year there is a different theme; in 2010 the main focus was on the landscaping and gardening industries.

2.4. What was achieved?

- Stigas conducted a survey on the prevalence of tick bites and Lyme disease for workers in organisations such as State Forest, Nature, Provincial Landscapes, landscape management organisations, and private companies.
- A consortium of 17 partners was established to promote a campaign to help people detect and treat tick bites, and to avoid being bitten in the first place.
- Stigas launched the 'Week of the tick' website www.weekvandeteek.nl, which received over 50,000 hits in the first few months.
- A Twitter website was also created to promote 'Week of the tick' (<http://twitter.com/weekvandeteek>).
- 'Week of the tick' events are held each year to promote good practice to organisations affiliated to Colland.

2.5. Success factors

The preliminary study helped Stigas to gain a detailed understanding of the problem and validated the advice provided on the 'Week of the tick' website.

By using links to other websites Stigas has provided a single portal from which workers and employers with concerns about tick bites can access useful information. The links have allowed Stigas to provide up to date and detailed information without having to duplicate the work of other organisations.

2.6. Further information

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2.7. Transferability

This case is a good example of how it is possible to promote specific topics that might otherwise receive little attention. It is an example of good cooperation between different organisations. The simple approach could be transferred to other areas and other sectors.

3. References, resources:

- o <http://osha.europa.eu/fop/netherlands/en/euweek/2008/gpcompetitie> (accessed 27 October 2010)
- o <http://www.weekvandeteek.nl> (accessed 27 October 2010)
- o <http://toolkits.loketgezondleven.nl> (accessed 27 October 2010)
- o <http://en.wikipedia.org/wiki/Permethrin> (accessed 17 February 2011)