Beating Buruli in Victoria

Information about the mosquito control study

Beating Buruli: the mosquito control study

Previous studies have shown that getting bitten by mosquitoes and gardening are possible risk factors for getting Buruli ulcer, while wearing insect repellent protected against infection.

These findings are the basis for the mosquito control study which aims to investigate the idea that an effective mosquito control program will reduce Buruli ulcer in humans.

What does the study involve?

Small residential areas in the Mornington Peninsula will be identified and randomly selected to be either ‘intervention’ or ‘control’ areas. This is called a cluster randomised control trial.

Residents will receive information on how to protect themselves from mosquito bites and the diseases mosquito bites might transmit – like Buruli ulcer.

Mosquito traps will be placed across the study area to monitor mosquito numbers.

Some areas will also receive a mosquito control program which will involve the application of a synthetic pyrethroid pesticide to nature strips using a process called residual harbourage spraying.

See the below map for an outline of the areas involved.

Fogging will only be used if necessary and may not be required at all. Larvicides may be used in specific areas that are particularly suited to mosquito breeding.

Where will the study take place?

The study will involve small areas within Rye, Sorrento, Blairgowrie and Tootgarook.

These areas have been selected as they represent the highest risk associated with the active transmission areas of Buruli ulcer in the Mornington Peninsula.

What synthetic pyrethroid pesticide is being used and how is it applied?

The type of synthetic pyrethroid pesticide is yet to be determined.

It will be applied to areas where mosquitoes may rest using a process called residual harbourage spraying. A fully trained operator will apply the control agent along the side of the road using a hose.

Water sources will never be sprayed directly, and the operator will be supervised by research staff with appropriate expertise. The spray dries quickly (depending on weather conditions) and is fully dry within 30 minutes.

Is this approach safe?

Yes. Synthetic pyrethroid pesticides have a long history of safe and effective use in mosquito control activities, both in Victoria and overseas.

They are commonly used in agriculture and are often sprayed in public areas, including in sportsgrounds and schools to keep mosquito populations down.

The study is being informed with advice from public health physicians, medical entomologists, council staff and research partners.

What about the environment?

Synthetic pyrethroids break down in sunlight, so chemicals do not accumulate in the environment.

Larvicide will only affect mosquito larvae (and perhaps black fly larvae). It will not be used in concentrations which will affect other animals, such as fish or other insects.

Synthetic pyrethroids are, however, harmful for bees and fish.

The research team will therefore be making every effort to minimise any impact to the local bee populations. That means not spraying near beehives or outside properties known to have beehives or fishponds.
Residents with beehives will be advised to cover or move them when the spraying is taking place. Residents with a fishpond will be advised to cover it.

**Can I opt out? I do not want pesticide administered by my house**

Yes, absolutely. Residents can opt out regardless of whether they own, rent or are staying at the property. This means that synthetic pyrethroids will not be applied to the nature strip surrounding the home.

**Who is conducting the study?**

The study is being conducted by a research collaboration. This includes the Department of Health and Human Services, the Doherty Institute and the University of Melbourne in collaboration with Austin Health, Mornington Peninsula Shire Council and Agriculture Victoria.

**When will this be happening?**

The mosquito control will start in late Spring 2019 and run until early Autumn 2020. Results will continue to be collected until the end of 2020.

**What information will be given to residents?**

A community consultation process is being planned, and our approach will be further informed by these conversations.

Residents will be advised well in advance of the timing of mosquito control activities in their neighbourhood and given the opportunity to opt out should they not wish to be involved in the process.

Information on how people can protect themselves from mosquito bites will also be delivered to all residents in the study area.

**How can residents minimise their exposure to the spray?**

If residents wish to minimize their exposure to the spray, they can consider taking the following measures:

- Plan to be away from home or stay indoors while the spray is taking place
- Bring pets inside
- Close windows and doors
- Remove any washing from the clothesline
- Bring pet bowls and toys inside or move them to an area that is away from the road (e.g. the backyard)
- Bring children’s toys inside or move them to an area that is away from the road (e.g. the backyard)
- Cover vegetable gardens
- Cover BBQs and outdoor settings
- Cover fish ponds
- Cover or move beehives

**How will we know if it works?**

Rates of Buruli ulcer will be compared between areas that received the mosquito control program and where people only received information about protecting themselves from mosquito bites.

This will let us know if the mosquito control program was useful for stopping people from getting Buruli ulcer. The findings will help direct public health policy to ensure that the most effective actions are taken in areas where Buruli ulcer is a problem.

**What is Buruli ulcer?**

Buruli ulcer (also known as Bairnsdale ulcer) is an infection of skin and soft tissue caused by the bacterium Mycobacterium ulcerans.

The toxin made by the bacteria attacks fat cells under the skin, which leads to localised swelling or the formation of a nodule (lump) and then an ulcer. At first, it can be mistaken for an insect or spider bite.

How people become infected is not known, however, Australian studies have indicated that mosquitoes might be important in spreading Buruli ulcer.

Although Buruli ulcer is not fatal, the infection can leave people with significant cosmetic and sometimes functional damage to limbs.

**Where is Buruli ulcer found?**

Buruli ulcer has been reported in 33 countries around the world. Affected areas include rural West Africa, Central Africa, New Guinea, Latin America and tropical regions of Asia.

In Australia, Buruli ulcer most commonly occurs in localised coastal areas of Victoria. It was first recognised in the Bairnsdale area of East Gippsland in the 1930s. Since then a growing number of cases have been reported in the Bellarine Peninsula and since 2012, the Mornington Peninsula. Buruli ulcer also occurs in the Daintree region of Far North Queensland.
Beating Buruli in Victoria

What is the Beating Buruli in Victoria project?

A substantial National Health and Medical Research Council grant enabled a collaborative partnership to be developed between Victoria’s Department of Health and Human Services (DHHS), the Doherty Institute, Barwon Health, Austin Health, CSIRO, Agriculture Victoria, the University of Melbourne and Mornington Peninsula Shire, to undertake an ambitious and innovative two-year project to better understand how Buruli ulcer is transmitted and determine effective ways to prevent and reduce infections.

The ‘Beating Buruli in Victoria’ project hopes to actively disrupt disease transmission for the first time and lead to the development of evidence-based policies and guidelines that can help stop the spread of Buruli ulcer around Victoria and possibly overseas.

More information

For more information on the Beating Buruli: the mosquito control study please visit www2.health.vic.gov.au/beatingburuli

Ethics approval

The study has been approved by the Department of Health and Human Services Human Research Ethics Committee in December 2018 (project number 47520).

Privacy

The study team is committed to protecting the privacy and confidentiality of all patients and residents of the study area. All information collected will be stored securely and will not be shared with anyone not directly involved in the research. Any information collected will only be used for this study.

This map shows the overall areas that will be involved in the study.