

Head lice don't pose a particularly serious [threat to our health](#) but they do cause great anxiety among parents and carers. This anxiety, and associated stress, is made even worse given the perceived social stigma of a family infested with parasites, and the seemingly endless battle to exterminate these pests.

What are head lice?

Head lice are small insects that are highly adapted to one type of environment: hair on a human's head (especially the hair and head of primary school-aged children).

Infestation with head lice is affectionately known as "pediculosis", but while the lice will scuttle up and down the strands of hair, feeding on blood at the scalp, they don't seem to cause anything other than very mild irritation. They're not involved in the spread of any nasty diseases either.

But head lice are highly contagious. If you or someone in your family has them, you'll probably want to get rid of them.

Are head lice becoming 'indestructible'?

For many years we've known that commonly used insecticides (particularly permethrins and pyrethroids) [aren't working as well as they once did](#) against head lice. Similar types of insecticides are currently being employed to battle outbreaks of mosquito-borne Zika virus in South America.

In much the same way that [mosquitoes](#), [bed bugs](#) and many agricultural insect pests are becoming resistant to commonly used insecticides, so are head lice.

A recent study published in the [Journal of Medical Entomology](#) provides some insight into just how prevalent insecticide resistance in head lice may be.

Here's how you beat 'indestructible' head lice

Written by Cameron Webb, Clinical Lecturer and Principal Hospital Scientist, University of Sydney

Thanks to school nurses and “professional lice combers”, scientists from the University of Massachusetts were able to analyse more than 14,000 head lice from almost 140 locations across 48 US states. They were looking for the genetic markers that indicate potential resistance to insecticides such as pyrethrins or pyrethroids.

The researchers found a very high prevalence of “knockdown resistance”, a mutation in the insect that make it less susceptible to insecticides. The results suggest that more than 98% of head lice analysed may not be susceptible to many head lice treatment products currently available.

The result isn't surprising. With so much use of insecticides against head lice, the development of resistance should almost be expected.

Before everyone panics, it is important to note that while the mutations that confer insecticide resistance were found to be widespread, that doesn't necessarily mean that all head lice will be resistant to commonly used insecticides. They may be, but we just don't know to what extent.

There are also likely to be differences between head louse populations across the world.

What about Australia?

Insecticide resistance [also occurs in Australian head lice](#) .

Any local product marketed as a head lice treatment must be registered with the [Therapeutic Goods Administration](#)

. While the evidence seems to be mounting that some of these insecticides aren't working well against some head lice, there are also other products available.

Australian plant extracts may be useful in beating insecticide-resistant head lice. Tea tree oil products are commonly available and have been [shown to be effective](#) .

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Some recent research indicates the extracts of the “Tick Bush” may be [useful for head lice treatment too](#).

We can even ditch the insecticides

Here is the really good news. We don't have to rely on insecticides to control head lice.

The “[conditioner and comb](#)” method works well enough. By applying conditioner to the hair, any adult lice present will be “paralysed” and can then be removed with specially designed “lice combs”. (Interestingly, the earliest known “lice combs” [date back to 1500 BC](#)).

Repeat the process a week later to catch any lice that hatch from eggs remaining in the hair and you should be done – at least until next time.

The biggest barrier to success is getting the children to sit still long enough to methodically work through their hair. Wrangling the kids is probably more difficult than wrangling the lice!

Cameron Webb and the Department of Medical Entomology, NSW Health Pathology and University of Sydney, have been engaged by a wide range of insect repellent and insecticide manufacturers to provide testing of products and provide expert advice on biting insect biology. Cameron has also received funding from local, state and federal agencies to undertake research into mosquito-borne disease surveillance and management.

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