

Exposure to *Coxiella burnetii* (Q fever) and *Rickettsia* spp. in Australian wildlife rehabilitators

Presented by: Ms Karen Mathews

kmat3540@uni.sydney.edu.au

Thank you for giving me the opportunity to communicate the findings from the Q fever and Rickettsia study undertaken at the AWRC 2018. I have compiled a list of the questions and responses arising from the presentation, and provided links to the manuscripts that were published from this research.

Frequently Asked Questions

Can I please confirm that it is not just macropods that rescuers/carers can risk Q fever exposure from, that it is all species that potentially could expose you to Q fever?

Macropods are the main wildlife species that have been associated with Q fever notifications in humans in Australia. Studies have however found evidence of *Coxiella burnetii* in other species of Australian wildlife including koalas (see link below). Although these species are much less likely than livestock to be a source of *C. burnetii*, rehabilitators of Australian wildlife should also consider these other species as a potential source of infection.

<https://onlinelibrary.wiley.com/doi/abs/10.1111/zph.12051>

I had a blood sample taken at the AWRC Sydney conference in 2018 and was negative for Q fever. I don't recall being asked if my blood could be checked for Rickettsia and as I have been bitten numerous times by ticks throughout my life and in the last 2 years actually have quite a noticeable reaction to the bites would be interested to know if I could be checked?

The invitation to participate in the Rickettsia study was sent as a link in the email containing the Q fever results. Unfortunately, I cannot test any more samples for rickettsia, however a more recent blood sample would be preferable given that the conference was in 2018. In future if you experience any reactions from bites, I suggest that you visit your GP. Here is the link the rickettsia fact sheet that I mentioned in the presentation

<https://www.health.nsw.gov.au/Infectious/factsheets/Pages/typhus.aspx>

I was vaccinated against Q fever about 10 years ago. Do I need a booster?

No, the Q fever vaccine is given only once because there can be severe reactions if given to those who have been previously exposed. Here is a link to the Q fever vaccination factsheet issued by NSW health department for you to read that explains the Q fever vaccination process.

<https://www.health.nsw.gov.au/Infectious/factsheets/Factsheets/qfever-vaccine.pdf>

Would the Q fever vaccine be available from your regular GP?

Not all doctors are trained in the pre-screening process. To find a doctor that can vaccinate you for Q fever please visit the following website <https://www.qfever.org/findvaccinator>

Is it worth being vaccinated against Q fever even if you have been infected in the past (known or unknown infection)?

The vaccine should only be given to those who have not been exposed to *Coxiella burnetii* as severe reactions can occur. Pre-vaccination screening is performed prior to vaccination to check for previous exposure. Here is a link to the Q fever vaccination factsheet issued by NSW health department for you to read that explains the Q fever vaccination process.

<https://www.health.nsw.gov.au/Infectious/factsheets/Factsheets/qfever-vaccine.pdf>

Can you be vaccinated if you have had Q fever?

The Q fever vaccine should only be given to those who have not been exposed to *Coxiella burnetii* as it can cause a severe reaction. For this reason, pre-vaccination screening is performed prior to vaccination, to check for previous exposure. Re-infection in people who have had previously had medically diagnosed Q fever is extremely rare. Here is a link to the Q fever vaccination factsheet issued by NSW health department for you to read that explains the Q fever vaccination process.

<https://www.health.nsw.gov.au/Infectious/factsheets/Factsheets/qfever-vaccine.pdf>

As a person who participated in your study, can we contact you for our individual results that you added to the study please?

Yes of course, but just bear in mind that the blood sample was taken few years ago, so your current serological status could be different to what it was in 2018. Please send me an email with your name to kmat3540@uni.sydney.edu.au

Can all ticks bite humans? We get a lot of ticks off birds and reptiles, not so many off mammals in our area

No not all ticks bite humans but the Southern Reptile tick which transmits *Rickettsia honei* bites humans. Here is a useful fact sheet on tick bite prevention issued by Department of health for you to read.

[https://www1.health.gov.au/internet/main/publishing.nsf/Content/EA2FA455F96F36F1CA257C3700786BCB/\\$File/Preventing-treating-tick-bites.pdf](https://www1.health.gov.au/internet/main/publishing.nsf/Content/EA2FA455F96F36F1CA257C3700786BCB/$File/Preventing-treating-tick-bites.pdf)

Could we have that link for the Q fever vaccination grant please?

The Foundation for National Parks & Wildlife currently have Q fever vaccination grants available for licensed wildlife rehabilitation groups in NSW through the Wildlife Heroes project. The grant round has been extremely popular so far, so if your group is planning to apply it is recommended that they do so as soon as possible. They will also be running a Q fever Q&A session in the coming weeks - the best way to stay in the loop is to go to the Wildlife Heroes website www.wildlifeheroes.org.au, and join their mailing list to be notified of opportunities and events.

You can contact Samantha McCann about this on wildlifeheroes@fnpw.org.au

How long after infection by rickettsia spp can it be detected in blood tests?

This is not may area of expertise however generally speaking 7-14 days to mount an AB response to any antigen so presumably rickettsia is similar.

<https://www.health.nsw.gov.au/Infectious/factsheets/Pages/typhus.aspx>

If you have had Q fever, can you /should you get vaccinated?

No if you have had Q fever you cannot get vaccinated. Here is a link to the Q fever vaccination factsheet issued by NSW health department for you to read that explains the Q fever vaccination process.

<https://www.health.nsw.gov.au/Infectious/factsheets/Factsheets/qfever-vaccine.pdf>

How long does a Q fever vaccination last? Do we need boosters and how often?

No if you have had Q fever, booster shots are not recommended due to severe reactions. Q fever disease in those previously vaccinated is uncommon. Here is a link to the Q fever vaccination factsheet issued by NSW health department for you to read that explains the Q fever vaccination process.

<https://www.health.nsw.gov.au/Infectious/factsheets/Factsheets/qfever-vaccine.pdf>

Are there tick species in Victoria we should be more aware of for Rickettsia?

Rickettsia are emerging pathogens many of which are transmitted by ticks, so it is important that you minimise your exposure to ticks and consult with your GP immediately if you have any symptoms. Here is a link explaining rickettsial diseases by NSW health department for you to read

<https://www.health.nsw.gov.au/Infectious/factsheets/Pages/typhus.aspx>

Could I have a copy of the Spotted Fever Group table please?

Spotted Fever Group				
Rickettsia	Human Disease	Distribution	Arthropod vector and species	Vertebrate Host
<i>R. australis</i>	Queensland Tick Typhus		 Australian Paralysis Tick <i>I. holocyclus</i> Common Marsupial Tick <i>I. tasmani</i> Southern Paralysis Tick <i>I. cornuatus</i>	Native rats and bandicoots
<i>R. honei</i>	Flinders Island Spotted Fever		 Southern Reptile Tick <i>Bothriocroton hydrosauri</i>	Blue tongue lizards and snakes
<i>R. honei</i> subsp. <i>marmorii</i>	Australian Spotted Fever		 <i>Haemophysalis novaeguineae</i>	Vertebrate host unknown
<i>R. felis</i>	Cat Flea Typhus		 Cat flea <i>Ctenocephalides felis</i>	Cats/dogs

Did you look at veterinarians/nurses who work with wildlife regularly or just wildlife carers? How likely is it that wildlife veterinarians/nurses may contract Q Fever?

The study cohort from the AWRC 2018 all identified as wildlife rehabilitators however many performed dual roles, and there were 26 veterinary nurses and one veterinarian. Here is the link to the relevant publication.

<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7725937/pdf/main.pdf>

Does vaccination distribution per state have any relation to prevalence of disease?

Although Queensland and NSW are the most heavily vaccinated states these two states account for approximately 85% of Q fever notifications in Australia.

If you have had Q fever can you get a secondary infection some years later eg 5 years?

Once someone has recovered from QFD is rare for them to become reinfected however both asymptomatic or symptomatic Q fever can manifest to clinical syndromes including Q fever fatigue syndrome and persistent infections such as endocarditis. I have attached a link to the Q fever factsheet issued by NSW health department for you to read that will explain all about the Q fever.

<https://www.health.nsw.gov.au/Infectious/factsheets/Pages/q-fever.aspx>



Contents lists available at ScienceDirect

One Health

journal homepage: www.elsevier.com/locate/onehlt



Coxiella burnetii seroprevalence and Q fever in Australian wildlife rehabilitators

Karen O. Mathews^{a,*}, Jenny-Ann Toribio^a, Jacqueline M. Norris^a, David Phalen^a,
Nicholas Wood^{b,c}, Stephen R. Graves^d, Paul A. Sheehy^a, Katrina L. Bosward^a

<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7725937/pdf/main.pdf>



Article

Serological evidence of exposure to Spotted Fever Group and Typhus Group rickettsiae in Australian wildlife rehabilitators

Karen O. Mathews¹, David Phalen¹, Jacqueline M. Norris¹, John Stenos⁴, Jenny-Ann Toribio¹, Nicholas Wood^{2,3},
Stephen Graves⁴, Paul A. Sheehy¹, C. Nguyen⁴, Katrina L. Bosward¹

<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8231516/pdf/pathogens-10-00745.pdf>