We lost the War with the Emus, let us not lose the war with the Vampires.

I am Dan Rosser, a 34-year-old professional with a distinguished career as a Senior Game Developer, educator, junglist and innovator. My life was profoundly and irrevocably changed by a tick-borne disease, specifically a chronic locally acquired infection caused by *Rickettsia australis*. My experience underscores the urgent need for reform in diagnosing, treating, and managing tick-borne diseases in Australia. This infection killed me and was not taken seriously from day one..

Rickettsia is found in 1 in 46 ticks in one study on the Northern Beaches of Sydney. (Kannan, P, 2021)

As a patient, I have witnessed firsthand the systemic failings in the healthcare system regarding tick-borne diseases, including:

Lack of Education: Medical practitioners often lack the training to identify and manage infections, albeit beyond Lyme disease.

Inadequate Diagnostic Resources: Reliance on incomplete or inappropriate testing protocols leads to misdiagnosis and untreated chronic infections. Laboratories that do correct NATA accredited testing for these tick bourne pathogens are not known to Doctors as resources or results are often disregarded.

This submission outlines my personal journey, highlights systemic issues, and presents recommendations for urgent action to protect Australians from the devastating consequences of tick-borne diseases.

Who am I

For the past fifteen years, I have built a career as a software engineer and game developer, leveraging a strong academic foundation that includes:

- **Bachelor of Science in Games Development (Distinction)** – University of Technology Sydney. **Diploma in Games Development (Distinction)** – TAFE
- **Diploma in Web Development** – TAFE **Diploma in Music Production**

I have had the privilege of working on impactful projects across various industries:

- **Australian Defence Department**: Developed software for the War Memorial's World War I display.
- **Freddy's Pass Off**: Collaborated with **Brad Fittler** and the **CEO of Channel 9** to create a hit iOS game that remained in the App Store's Top 10 for a month.
- **iOS Applications**: Designed apps for high-profile clients, including **Foxtel**, **ABC**, **BighArt**, and **Nurofen**.

My work in game development has reached millions worldwide:

- **Super Hexagon**: Contributed to the game engine for this global sensation, managed the iOS and Android ports. Apple's Featured App of the Week.
- **openFrameworks**: lead developer on Advanced creative coding, AI, and computer vision using this C++ framework.
- **Rumu**: As Lead Game Developer, I spearheaded this award-winning project, earning an Australian Game Developer Award in 2017.

Beyond development, I've published six research papers exploring AI-trained data models for health (in 2012), showcasing my dedication to innovation at the intersection of technology and well-being.

I was employed by UTS as the lead Game Programmer Teacher for 3 years and worked on development of course units to the federal curriculum for Game Development through TAFE, which were applied.

Recognition of my contributions includes being named in a **30 Under 30 list**, a testament to my impact in the local industry.

But in 2019, everything changed. A tick bite in Kangaroo Valley set me on a completely different journey, one that would test my resilience and lead me to become an advocate for change.

My Journey: A Life Altered by Rickettsia

In 2019, I traveled to Kangaroo Valley, NSW, for a long weekend with my girlfriend and her housemates. I was living the dream: employed full-time as a Lead Game Developer at SMG Studios, working hard on new prototypes during crunch hours, and planning a relaxing break out in the bush. However, I forgot to bring insect repellent—a small oversight that would change my life forever.

The Bite

During our walk, we noticed an unusual number of dead wombats and kangaroos. It struck us as odd—was something poisoning them? The next day, I found a tick on my back, which my girlfriend removed. It was engorged but had likely been attached for less than 10 hours.

Five days later, I began experiencing jaw pain. A visit to the dentist led to some fillings, but the pain persisted. By day seven, I developed a fever and delirium, migraine.. I saw an infection track spreading from the middle of my back in the mirror. Alarmed, I visited a doctor who prescribed Amoxicillin and advised me to go to the emergency room if my condition worsened.

The following day, my temperature soared to 41°C. I rushed to the Emergency Department of my nearest hospital in Marrickville.

Medical Negligence

Upon admission, my temperature had dropped to 38°C, but I was still feverish, migraine feeling dread.. Desperate for answers, I researched my symptoms and concluded that I might have Queensland Tick Typhus (*Rickettsia australis*). With a fatality rate as high as 1-30% for untreated cases—and even higher for related strains—I knew the situation was critical.

Unfortunately, the attending doctor dismissed my concerns outright. They told me *only* Lyme disease existed in Australia, claimed a tick needed to be engorged for at least 24 hours to transmit disease, and yelled at me for "googling" my symptoms in the Emergency Waiting room.. Despite my insistence, they refused to administer doxycycline or test for *Rickettsia australis*. A passing Doctor even said Lyme was contested. Instead, I was given a tetanus shot and sent home.

A Delayed Diagnosis

Three days later, my GP followed the guidelines and prescribed 100mg of doxycycline daily for seven days (half the recommended dosage) while ordering serology tests. Three weeks later, the results came back positive for *Rickettsia australis* (IgM 128). Despite the short course of antibiotics, my brain symptoms worsened over the following months. I experienced memory issues and cognitive decline resembling dementia. When I asked my GP for follow-up testing, I was refused.

A Life Falling Apart

As the months passed and the COVID-19 pandemic took hold, I began working from home. However, my memory continued to fail, and I struggled to meet deadlines. Eventually, I lost my job as a Lead Game Developer. I could not think, brain fog mixed with a feeling of doom.

Unable to code, I enrolled at TAFE to study music, hoping to shift my focus. But even here, my brain's dysfunction followed me—I began failing essays and was diagnosed with ADHD by a psychiatrist. My condition worsened, with no answers in sight.

I tried to complete update software contracts for past games, but failed at every turn. Could not work. I was told I was a genius in the past and now I couldn't write an essay or finish simple tasks.

By November 2022, my health hit rock bottom. Severe jaw pain and a mouth infection emerged, leading to unconsciousness on two occasions. Antibiotics (azithromycin and doxycycline) brought an unexpected revelation: my brain suddenly "woke up." For the first time since the tick bite, my mind returned to baseline. So for the last 3 years I was told all my brain symptoms were ADHD or depression turned out to be a chronic rickettsial infection. Why else would the recommended antibiotics to treat my condition clear my brain.

Recurring Battles 2022

Unfortunately, my recovery was short-lived. After collapsing, 4 hours later I awoke. I was experiencing a stiff neck, fever, and confusion, so I returned to the same hospital, thinking they would have the test results to help me. The attending doctor dismissed me once more, relying on a negative Lyme test and disregarding my history of *Rickettsia australis*, as the hospital had no record of it. 2019 they never tested.

I convinced my GP to repeat serology tests, which confirmed active *Rickettsia* infection (IgM 256). While antibiotics temporarily relieved my symptoms for a few weeks, the infection persisted, never given a treatment plan to eliminate, just 1 week or 14 days, pathogen shifting between dormant and active states.

Systemic Failures

Throughout my journey, I encountered systemic failures at every level:

- My initial serology results were ignored, and follow-up testing was denied.
- A neurologist noted my symptoms were consistent with Rickettsial meningitis but lamented the lack of a lumbar puncture during my acute phase.
- Infectious disease specialists dismissed my condition due to a lack of

precedent or official guidelines.

Even when I paid for my medical records in 2023, the hospital delayed their release, illegally,, hampering my ability to provide details to Infectious Disease Doctor who refused treatment before I found Legionella myself (private ordered serology)

Borrelia Microbes not associated with Lyme Disease have been found in the Brains of Autopsies in the United States (Olovchenko, M 2023).
Australia has Borrelia microbes found in our fauna DNA confirmed (Gofton, A.W, 2023), while researchers will say, not the same and hasn't been linked to Lyme Disease, we can infer from the Brains of the Dead who were confirmed with Lyme Disease symptoms, had the other Borrelia not generally accepted Lyme Disease microbes, present in the brain causing dysfunction. It's all in their head?

Co-Infections and Self-Advocacy

Over time, additional complications emerged suggesting my immune system was compromised by this relentless rickettsia

- *Legionella*: Serology confirmed infection (IgM 256), likely due to susceptibility from the *Rickettsia* (same blood negative for Rickettsia so not cross reaction)
- *Penicillium*: After extensive self-investigation using microscopy, I identified a rare fungal infection in my throat and sinuses, later confirmed by pathology.

By 2023, 2024, I was fighting for my life. Using experimental treatments such as mebendazole (to inhibit critical enzyme used by rickettsia), antiparasitics, antifungals, methylene blue and occasionally trying different antibiotics which worked, however always prescribed for other infections like eyes.. I began to make progress. These pathogens, which had once seemed unbeatable, were finally responding.

Lessons Learned

The Australian healthcare system failed me in almost every way. Doctors dismissed my symptoms, refused appropriate tests, and denied treatment. The lack of education about tick-borne diseases—particularly *Rickettsia australis*—left me to fend for myself.
Despite being part of the DSCATT study, much of my recovery has been self-directed, relying on experimental treatments and extensive personal research. I am now advocating for systemic changes to prevent others from suffering as I have.

I advocate and have spoken to hundreds of patients world wide during my infection with clues and ideas where they have hit similar roadblocks.

Conclusion

My story is not unique. Many Australians suffer from tick-borne diseases, yet the healthcare system remains woefully unprepared to address their needs. The lack of awareness, inadequate diagnostics, and dismissive attitudes of medical professionals exacerbate these conditions, turning treatable infections into lifelong battles.
It is my hope that through this Senate inquiry, we can pave the way for better education, research, and treatment pathways, ensuring that no one else has to

endure what I, what I have suffered, what I have lost, the potential of me was sacrificed so that I could, know what it is to walk in the valley of the shadows and return from the darkness with light, a light to heal those who can't be and a voice that cannot be unheard. We will win this War Australia, spirit and body, we will win, together.

Education and Awareness:

Integrate advanced tick-borne disease training into medical curricula and continuing professional education.

Develop public awareness campaigns to educate Australians on tick prevention and early intervention.

Diagnostic and Treatment Reforms:

Expand access to comprehensive serological testing, including IgM and IgG monitoring over time.

Invest in genomic sequencing and advanced diagnostics for persistent infections.
Including DNA stool testing with all Tick Bourne Illnesses sequenced
Revise clinical guidelines to include management of chronic and complex cases.

Research Funding:

Allocate funding for interdisciplinary research on intracellular pathogens, immune responses, and novel treatment options.

Support patient-centered studies to document long-term outcomes of tick-borne diseases - with treatment plans.

Training:

Tick-borne diseases in Australia are a growing threat that requires immediate attention from the Federal government, State governments, medical community, and public health officials.

My story represents just one of many, and it highlights the systemic failures that have left patients without adequate care. By prioritising education, research, and clinical reform, we can prevent further suffering and build a healthcare system capable of addressing the complexities of tick-borne diseases.

Thank you for considering this submission. I am available for further discussion and to provide additional evidence or personal accounts as needed.

Kind Regards,
Dan Rosser

I've added supplemental appendix A with references for further evidence

Appendix A.

1. Kannan, P., Wang, D., Blasdell, K., Martin, J., Mathai, M., Boyle, M., Tong, S. and Stenos, J. (2021) ‘Metatranscriptomic profiling reveals **diverse tick-borne bacteria, protozoans and viruses in ticks and wildlife from Australia**’, *Transboundary and Emerging Diseases*, 70(5), pp. 2725-2733. doi: 10.1111/tbed.14581.
2. Olovchenko M, Opelka J, Vancova M, Sehadova H, Kralikova V, Dobias M, Raska M, Krupka M, Sloupenska K, Rudenko N. Concurrent Infection of the Human **Brain with Multiple Borrelia Species**. Int J Mol Sci. 2023 Nov 29;24(23):16906. doi: 10.3390/ijms242316906. PMID: 38069228; PMCID: PMC10707132.
3. Gofton, A.W., Popa-Baez, A., Takano, (2023) ‘Characterisation and comparative genomics of three new *Varanus*-associated ***Borrelia* spp**. **from Indonesia and Australia**’, *Parasites & Vectors*, 16, Article 317. doi: 10.1186/s13071-023-05937-4. : https://parasitesandvectors.biomedcentral.com/articles/10.1186/s13071-023-05937-4
4. Jiang, J., Richards, A.L., & Kelly, D.J. (2022) **Buerger's Disease May be a Chronic Rickettsial Infection** with Superimposed Thrombosis: Literature Review and Efficacy of Doxycycline in Three Patients. Available at: https://pubmed.ncbi.nlm.nih.gov/35384418/
5. Sun, H., Luu, A.P., Danielson, M., Vo, T.T., & Burke, T.P. (2023) **Host glutathione is required for Rickettsia** parkeri to properly septate, avoid ubiquitylation, and survive in macrophages, bioRxiv. Available at: https://doi.org/10.1101/2023.10.02.560592
6. Smyth, J.D., & Barrett, N.J. (1986) **Effects of mebendazole, albendazole, and praziquantel on glutathione S-transferase** and superoxide dismutase of Echinococcus granulosus cyst wall harbored in mice, International Journal for Parasitology, 16(2), pp. 147-153. Available at: https://www.researchgate.net/publication/15531252_Effects_of_mebendazole_albendazole_and_praziquantel_on_glutathione_S_transferase_and_superoxide_dismutase_of_Echinococcus_granulosus_cyst_wall_harbored_in_mice
7. Špitalská, E., Špitalský, Z., Markovic, Z., & Štefanidesová, K., Škultéty, Ľ. (2018) **Methylene Blue and Red LED (660nm) therapy to treat Rickettsial infection**, Photodiagnosis and Photodynamic Therapy, 24, pp. 150-152. doi: 10.1016/j.pdpdt.2018.09.018. Available at: https://pubmed.ncbi.nlm.nih.gov/30278280/
8. Stewart, A., Armstrong, M., Graves, S., & Hajkowicz, K. (2017) **Azithromycin for Rickettsia australis and Queensland Tick Typhus**: A Rickettsial Spotted Fever Group Infection in Australia, The merican Journal of Tropical Medicine and Hygiene, 97(1), pp. 24–29. doi: 10.4269/ajtmh.16-0915. Available at: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5508907/
9. Odeur, A., Dill, B.D., Molestina, R.E., & VanGuilder, M. (2010) **The role of intracellular glutathione in the progression** of Chlamydia trachomatis infection, Free Radical Biology and Medicine, 49(12), pp. 1947-1955. doi: 10.1016/j.freeradbiomed.2010.09.024. Available at: https://pubmed.ncbi.nlm.nih.gov/20888409/
10. Baghli, I., Makis, W., Marik, P.E., Gonzalez, M.J., Grant, W.B., Hunninghake, R., Levy, T.E., Lim, H., Cheng, R.Z., Bondarenko, I., Bousquet, P., Ortiz, R., Mary, M., D’Agostino, D.P., & Martinez, P. (2023) Emerging Perspectives on the Antiparasitic **Mebendazole as a Repurposed Drug for the Treatment of Brain** Cancers, International Journal of Molecular Sciences, 24(2), p. 1334. doi: 10.3390/ijms24021334. Available at: https://pubmed.ncbi.nlm.nih.gov/36674870/
11. Burke, T. (2018) (5 min) Rickettsia | Dr Thomas Burke at Bear Slam 2018, UC Berkeley. Available at: https://www.youtube.com/watch?v=6JwLqn5KAjE
12. Schardt, F.W. (2004) **Clinical effects of fluconazole in patients with Neuroborreliosis** , Medical Science Monitor, 9(7), pp. 334-336. Available at: https://pubmed.ncbi.nlm.nih.gov/15337633
13. “**Although doxycycline is the antibiotic of choice** for rickettsial infections, **it only stops bacteria from reproducing and does not kill the rickettsiae**” (Liu et al., 2021, p. 5) https://journals.asm.org/doi/10.1128/mbio.00769-21