

2025 Infection Research Newsletter - Q4



Welcome

Welcome to our last newsletter of 2025!

As we wrap up the year, we would like to highlight what the Infection Research Program got upto in 2025 and what we have achieved.

We survived!



As most of you are aware, HMRI recently conducted a **thorough review of each of the 19 research programs**. This process took place over several months and involved significant

paperwork and formal interviews. While many programs were discontinued or merged, we are proud to be one of the few programs continuing without major changes to our structure. **Thank you for being a loyal affiliate and for all your contributions over the past four years.**

Congratulations, Josh!



Congratulations to Prof Josh Davis, Founder and Co-Director of the Infection Research Program on winning the **2025 HMRI Award for Research Excellence**. This is a fantastic achievement and a significant milestone for our program.

To read more, click here¹.

Gloves Off! - winner of the NSW Health award for Environmental Sustainability



¹<https://hmri.org.au/research/awards/>

The *Gloves Off!* trial evaluated a targeted educational intervention on two hospital wards to reduce unnecessary non-sterile glove use and improve hand hygiene. The intervention significantly reduced glove use from 60% to 23%, increased hand hygiene compliance from 59% to 83%, lowered costs, and cut environmental waste and CO₂ emissions. This shows that focused staff education can improve infection control while delivering financial and sustainability benefits.

Congratulations!

To access the award page and video, click [here](#)².

Best Poster - Delegates Choice Award at 2025 ACIPC conference



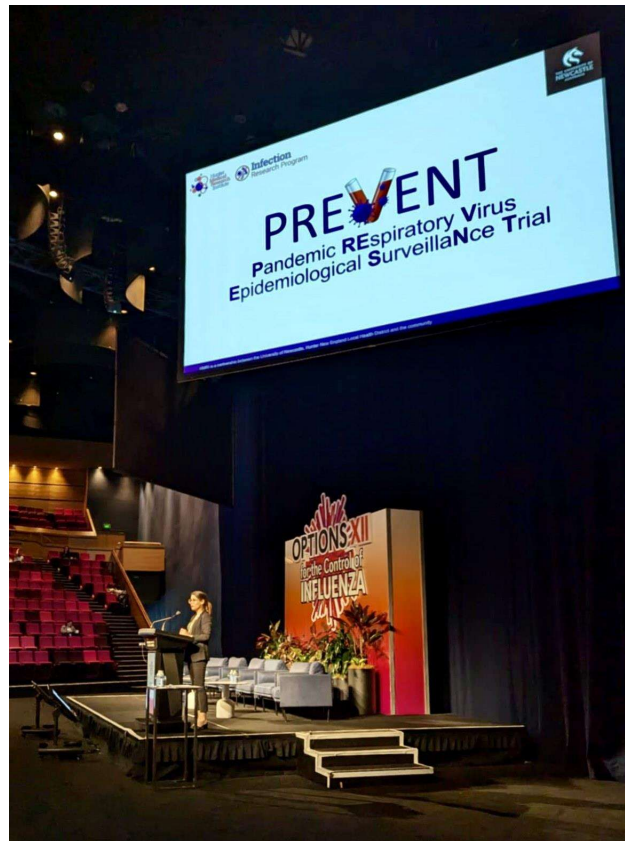
²<https://www.health.nsw.gov.au/awards/2025/Pages/gloves-off.aspx>

Presentation of the PREVENT results



2 - OPTIONS XII conference

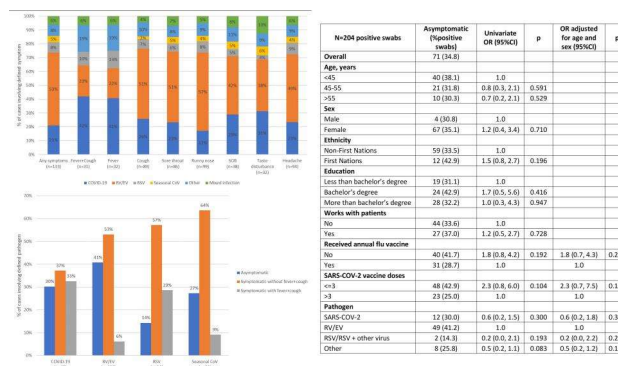
Two abstracts have been submitted and accepted to present the results of the PREVENT study at the **OPTIONS XII** (Options for the control of influenza) conference in Brisbane.



Dr Camille Esneau presented an abstract titled:

The PREVENT Study – An Assessment of Virus Circulation in the Hunter New England Community

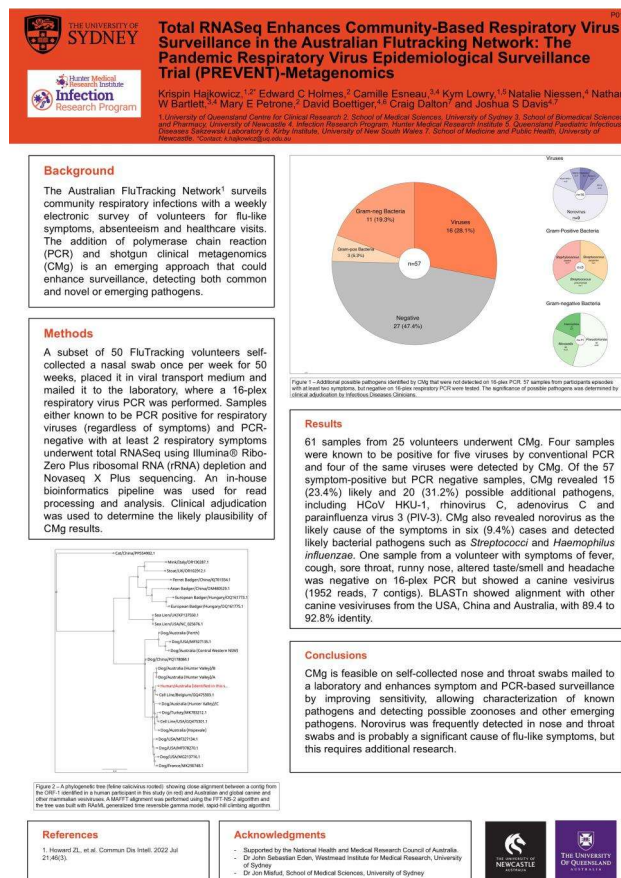
The PREVENT study evaluated whether long-term, community-based surveillance for respiratory viruses is practical, using weekly nasal swabs from Flutracking participants in the Hunter New England region. Over 53 weeks, more than 2,000 samples were collected with strong participation, revealing frequent circulation of respiratory viruses throughout the year. The findings show that this approach is feasible and could form the basis of a broader early-warning surveillance system for emerging respiratory threats.



Dr David Boettiger presented an abstract with the title:

Self-swab respiratory virus surveillance for assessing disease burden and asymptomatic infection – The PREVENT pilot study

The PREVENT pilot study tested the feasibility of weekly self-swab respiratory virus surveillance among adults in Newcastle, Australia. Over 12 months, 10% of 2,072 swabs were positive, with rhinovirus/enterovirus (64%) and SARS-CoV-2 (21%) most common. Findings show substantial asymptomatic infection (35% of positives) and suggest integrating self-swabbing into existing platforms like Flutracking could enhance monitoring of disease burden and asymptomatic spread.



Dr Krispin Hajkowicz presented a poster titled **Total RNASeq Enhances Community-Based Respiratory Virus Surveillance in the Australian Flutracking Network: The Pandemic Respiratory Virus Epidemiological Surveillance Trial (PREVENT)-Metagenomics** at the ESCMID (European Society of Clinical Microbiology and Infectious Diseases) conference in Vienna.

The PREVENT Metagenomics Study explored whether adding clinical metagenomics (CMg) to Australia's FluTracking surveillance could improve detection of respiratory pathogens. Fifty volunteers mailed weekly nasal swabs for PCR testing, and 61 samples underwent CMg sequencing. CMg confirmed PCR results and identified additional likely or possible pathogens in 54% of PCR-negative symptomatic samples, including rhinovirus C, adenovirus C, parainfluenza virus 3, norovirus, and bacterial species. Notably, a canine vesivirus was detected in one participant, suggesting potential zoonotic exposure. The study demonstrates that CMg is feasible on self-collected swabs and enhances surveillance by improving sensitivity and detecting emerging pathogens.

The Pandemic REspiratory Virus Epidemiological SurveillaNce Trial - A self-swab surveillance system for respiratory viruses nested within FluTracking

Camille Esneau¹, David Boettiger^{1,2,3}, Sarah Leask⁴, Nathan E Bryant¹, Natalie Niessen¹, Jodie McVernon^{5,6}, Adrian Marcato⁷, Sandra Carlson², Stuart Browne⁴, Rejoy Thomas¹, Edward C Holmes⁷, Krispin Hajkowitz⁸, Lynelle Tilbrook⁹, Nathan Moon⁹, Craig Dalton², Nathan W Bartlett¹, Joshua S Davis¹

Running Title: PREVENT: Self-Swab Surveillance Trial

40-word summary: PREVENT aimed to evaluate the feasibility of a community self-swab respiratory surveillance system embedded within the FluTracking Australia Framework. High participation and retention reflected strong community engagement, supporting feasibility and potential for wider implementation.

The first PREVENT article has been formally accepted for publication in ***The Journal of Infectious Diseases***. A link to the article will be included in the next newsletter.

Visiting Professors



Steven Tong

(12-12:30pm)

"What they didn't teach you at university about Streptococci: Group A Strep's poor cousin, Streptococcal transmission dynamics and developing a new clinical trial"

Professor Tong will describe recent work on the epidemiology and clinical aspects of streptococcal disease in Australia, comparing the burden of disease, transmission dynamics and genomics of *Streptococcus pyogenes* (AKA Group A Strep or Strep A) and *Streptococcus dysgalactiae* subspecies *equisimilis* (AKA Group C or G Strep). He will also describe how these data have informed the design of a new adaptive platform trial for invasive Streptococcal infections.



Laurens Manning

(12:30-1pm)

"First Nations, First Served: equitable access, manufacture and delivery of long-acting penicillins for people with rheumatic heart disease and syphilis"

Professor Manning will describe the global landscape for this essential medicine, novel delivery methods which hurt less and last longer, and plot a course for a novel, Australian-made formulation.

We were honoured to host **Prof Steven Tong (UoM)** and **Prof Laurens Manning (UWA)**, who gave guest presentations here at HMRI. Prof Josh Davis and Prof Steven Tong are co-leading the adaptive *Staphylococcus aureus* trial **SNAP**, and together with Prof Laurens Manning are leading the adaptive Prosthetic Joint Infection RCT **ROADMAP**.

To access the recording of their presentations, click here³.

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Represented at the Crossroad Conference 2025

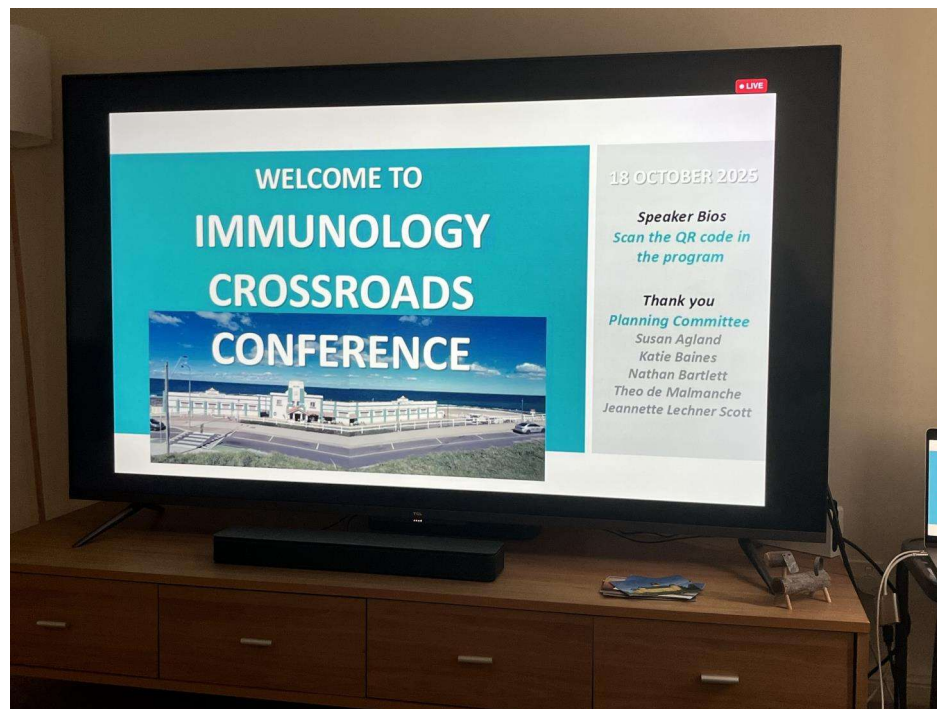
Program Affiliates Dr Jason Girkin, Prof Josh Davis and Prof Nathan Bartlett represented the Infection Research Program at the 2025 Crossroad Conference.

Jason presented on Innate Immunity and Bridging the Vaccine Gap for Respiratory Viruses.

Josh covered Vaccines in Immunosuppressed People and addressed the questions 'Which Ones, When and Why'.

Nathan's presentation highlighted MRNA Vaccines Beyond Covid.

Last but not least, Nathan and Josh were part of a Case Study & Panel Discussion about Prolonged Covid Pneumonitis Related to Anti-CD20 Treatment for Lymphoma.



³https://uonewcastle.zoom.us/rec/share/V3gMDKiMaGeu3ldwX5PrcCWcP_VjBQ-8A2_Wy0P5zhJDbTFcfzluY_haYF-QMBq.XiBdHAatbM74mATe

● LIVE



Modulating innate immunity for broad-spectrum protection

Three main methods

Priming innate immunity

- Upper airway TLR2 agonists
- Prophylactic / post-exposure prophylactic
- **TLR2 activation** on airway epithelial cells triggers a **non-specific, antigen-independent immune response**.
- Reduced viral load (Flu, RV, CoV)

Inhibiting inflammatory mediators

- Anti-IL-25 mAb
- Reduce type 2 (allergic) inflammation
- Reduced peak neutrophilia
- Enhanced antiviral (interferon) responses
- Reduced lung viral load




If you have technical issues or would like to ask a general question regarding the conference please call 0405 498 262 or 0447 220 644

Questions? Go to www.slido.com Enter event code is: Immunology25

To receive an Attendance Certificate, please contact tracy.dobson@newcastle.edu.au after viewing the conference to obtain the link to complete an evaluation questionnaire.

Please scan QR to notify your attendance



● LIVE



Characteristic	Live Vaccine	Killed Vaccine
Duration of immunity	Longer	Shorter
Effectiveness of protection	Greater	Lower
Immunoglobulins (Ig) produced	IgA ¹ and IgG	IgG
Cell-mediated immunity produced	Yes	Weakly or none
Interruption of transmission of virulent virus	More effective	Less effective
Reversion to virulence	Possible	No
Stability at room temperature	Low	High
Excretion of vaccine virus and transmission to nonimmune contacts	Possible	No

¹If the vaccine is given by the natural route.




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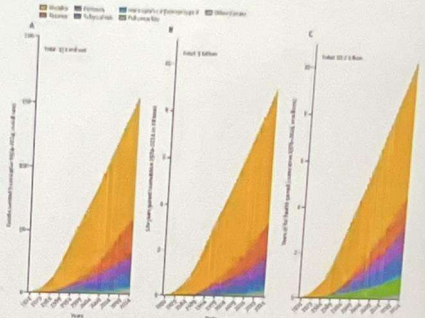
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Vaccines reduce infectious disease burden

- Incontrovertible impact on infectious disease outcomes:
 - Deaths averted
 - Life years gained
 - Years of full health gained
- Major impact on infant mortality, morbidity & mortality



Shattock et al. (2024) The Lancet

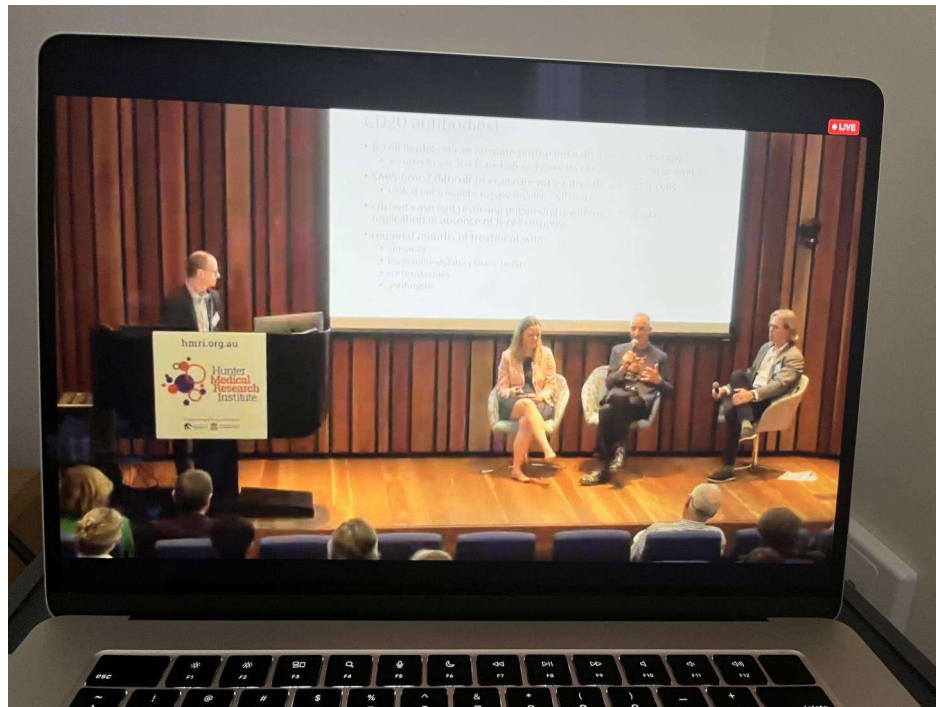
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Questions? Go to www.slido.com Enter event code is: Immunology26

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Recent Publications by our Program Affiliates



Esneau, C., Boettiger D., Leask S., Bryant, N.E., Niessen, N., McVernon, J., Marcato, A., Carlson, S., Browne, S., Thomas, R., Holmes, E.C., Hajkowicz, K., Tilbrook, L., Moon, N., Dalton, C., Bartlett, N.W., Davis, J.S. (2025). The Pandemic REspiratory Virus Epidemiological SurveillaNce Trial - A self-swab surveillance system for respiratory viruses nested within FluTracking. *The Journal of Infectious Diseases*. In Press.

Thottiyil Sultanmuhammed Abdul Khadar, B., Mitchell, B. G., McDonald, V. M., McDonagh, J., & Sim, J. (2025). User experience of air purifiers for the purpose of reducing acute respiratory

tract infections: A cross-sectional survey in residential aged care settings. *Infection, disease & health*, S2468-0451(25)00050-1. Advance online publication.
<https://doi.org/10.1016/j.idh.2025.07.004>

Jordan, V., **Davis, J. S., & Naqvi, S.** (2025). **Assessing yield and impact of 5-day versus 10-day incubation time in suspected prosthetic joint infection: a prospective laboratory study.** *Pathology*, S0031-3025(25)00285-5. Advance online publication.
<https://doi.org/10.1016/j.pathol.2025.07.004>

SuDDICU Investigators for the Australia and New Zealand Intensive Care Society Clinical Trials Group and the Canadian Critical Care Trials Group, Cuthbertson, B. H., Billot, L., Campbell, M. K., Daneman, N., **Davis, J. S.**, Delaney, A., Devaux, A., Ferguson, N. D., Finfer, S. R., Fowler, R., Gordon, A. C., Hammond, N. E., Klein, G., Li, Q., Marshall, J., Micallef, S., Murthy, S., Mysore, J., Naik, C., ... Myburgh, J. A. (2025). **Selective Decontamination of the Digestive Tract during Ventilation in the ICU.** *The New England journal of medicine*, 10.1056/NEJMoa2506398. Advance online publication. <https://doi.org/10.1056/NEJMoa2506398>

Johns, B. P., Loewenthal, M. R., Dewar, D. C., Manning, L. A., & **Davis, J. S.** (2025). **Comparison of surgical treatments for hip and knee periprosthetic joint infections using the desirability of outcome ranking in a prospective multicentre study.** *Journal of bone and joint infection*, 10(2), 73–84. <https://doi.org/10.5194/jbji-10-73-2025>

Turner, A., van Driel, M. L., Mitchell, B. L., Davis, J. S., Tapley, A., Holliday, E., Dizon, J., Glasziou, P., Bakhit, M., Mulquiney, K., Davey, A., Fisher, K., Baillie, E. J., Fielding, A., Moad, D., Dallas, A., & Magin, P. (2025). **Changing the antibiotic prescribing of Australian general practice registrars' for acute respiratory tract infections: a non-randomized controlled trial.** *Family practice*, 42(2), cmaf005. <https://doi.org/10.1093/fampra/cmaf005>

Legg, A., **Ferguson, J. K., Munnoch, S. A., & Davis, J. S.** (2025). **Not "a cute" complication: phenotypic analysis of acute kidney injury in Staphylococcus aureus bacteraemia.** *Clinical microbiology and infection : the official publication of the European Society of Clinical Microbiology and Infectious Diseases*, 31(4), 643–646.
<https://doi.org/10.1016/j.cmi.2024.12.034>

Wilkie-Miskin, T., Acosta, M. A., **Browning, S.**, Pickles, K., **Munnoch, S.**, **Knight, P.**, Bernotas, A., Chen, S., Ng, R., Mathieu, E., & NSW Health Net Zero Clinical Leads Program (2025). **Gloves off!: Environmental and financial impacts of an educational intervention to improve hand hygiene. A quality improvement study.** *Infection, disease & health*, S2468-0451(25)00049-5. Advance online publication. <https://doi.org/10.1016/j.idh.2025.07.003>

Merry Christmas



Wishing you all a Merry Christmas and a wonderful holiday season. Thank you for your dedication and contributions this year.

We look forward to another successful year ahead. Happy New Year!

Contact

For any Questions, Contributions, Feedback or other Queries, contact Natalie.Niessen@newcastle.edu.au⁴

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