



2022 Quarter 4 Newsletter

Welcome to the first Newsletter of the HMRI Infection Research Program! We hope to publish these 3-4 times per year to keep all our affiliates, donors, collaborators and any other interested clinicians, researchers and community members up to date with our activities and plans.

OUR TEAM (From left to right):



Dr Natalie Niessen - Program Manager

Prof Josh Davis - Program Lead

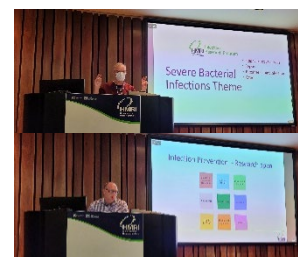
Dr Sarah Browning - Early Career Representative

A/Prof John Ferguson – Co-lead of the Infection Prevention Theme

Prof Brett Mitchell – Program Deputy Lead

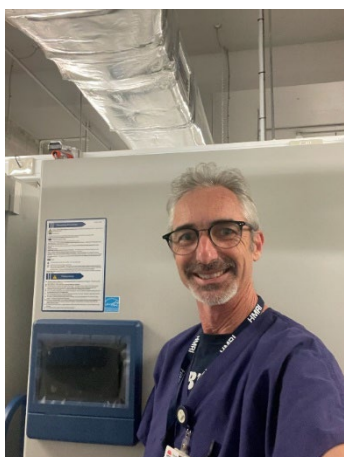
PROGRAM LAUNCH

On the 19th of September we officially launched our program. Josh and Brett introduced the **Key Themes** of the Infection Research Program: 1) Severe bacterial infections, 2) Infection prevention, and 3) Pandemic preparedness. We also heard from Prof Zsolt Balogh and Dr Gabrielle Briggs about the Injury and Trauma Research Program, and A/Prof Christine O’Neil presented on behalf of the Surgical and Perioperative Care Research Program. In case you missed it, here is the link to the [Recording](#).



OUR NEW TOY

We have some exciting news to share: our program is now proud owner of a -80°C Freezer! If you’ve ever had to purchase one of those beasts, you may know how much bureaucracy it involves (thanks to Natalie for her perseverance and hard work!). After various headaches, our baby has finally arrived! Now we **need your help** finding a name for it. Does it look like a Lord Kelvin? Yoda? Gimli? John Snow? Or more like a Princess Elsa? We would love to hear which name comes to your mind!



Please email your
Name Suggestions to
Infection@HMRI.org.au
by the **15th of January 2023**.
The lucky winner and the new name
will be announced in our next
Newsletter end of January.
**The freezer is located at HMRI and for
all our program affiliates to use. If you
need some freezer space, please
contact [Natalie](#).**

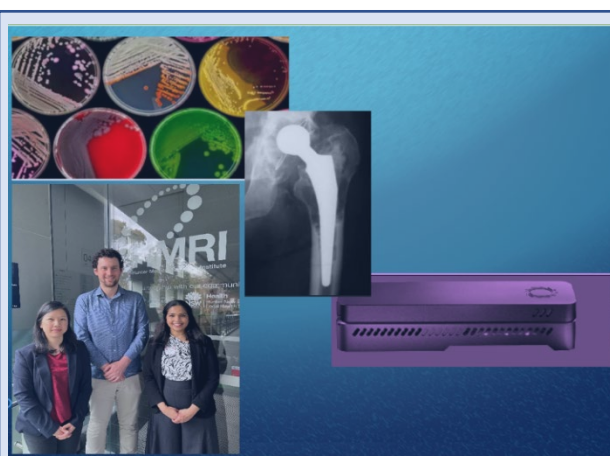




2022 RESEARCH SEED GRANTS

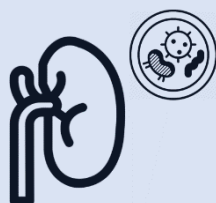
In September, we announced the two successful applicants of our 2022 Seed Grants, each worth \$23,500. Congratulations! Dr Hemalatha Varadhan and Dr Matthew Rowlandson and their co-applicants.

Hema and Team will be working on a molecular approach in diagnosing **Prosthetic Joint Infections**. Hip and knee replacements are the two most common forms of joint replacement surgery. In Australia, over 100,000 hip or knee replacements are done each year, and about 2% of patients end up with a deep infection, causing loss of quality life and high health care costs. Traditional microbial cultures miss bacteria 10-15% of the time. Improved diagnostic tools are needed to identify pathogens causing the infection and to rule out other causes of prosthetic joint failure.



We aim to improve patient outcomes by using pathogen genomics to diagnose prosthetic joint infections. Our research will investigate whether next-generation DNA sequencing can supplement microbial culture in diagnosing prosthetic joint infections. We will compare two commercially available DNA sequencing technologies and assess their strengths and weaknesses, including accuracy of results, method complexity, and sequencing speed. Ultimately, our goal is to design a pathogen genomics-based workflow for diagnosing prosthetic joint infections that could be implemented within the Clinical Microbiology Laboratory at John Hunter Hospital.

Matt and Katie will investigate immune response biomarkers in **Kidney Transplant Recipients**



Kidney Transplantation is the preferred treatment for patients with End Stage Kidney Disease. Despite the improvements in immunosuppressive strategies, infection-related complications remain a significant burden for kidney transplant recipients. Our study will explore our local cohort. We will be collating clinical and biochemical data and utilising novel biomarkers to investigate recipients' immune response profiles. Our overall aim is to establish an integrated biomarker-based and clinical infection risk assessment in kidney transplant patients to guide immunosuppressive altering strategies before, during and after episodes of infection.



Again, Congratulations! We can't wait to hear about your progress! We will likely be offering at least one seed grant again in 2023, so start planning your application!



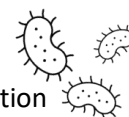
RECENT PAPERS FROM OUR TEAM

In each edition of this newsletter, we will highlight a few recent publications by our affiliates, and relevant to the aims and themes of our program. We will start with a few of Josh and Brett's recent papers, but for future editions, please let us know about *your* recent papers.



[Burden of five healthcare associated infections in Australia](#)

(M. Lydeamore, **B. Mitchell** et al., May 2022, *Antimicrobial Resistance & Infection Control*)



- ➔ Identifies hospital acquired pneumonia as the most common healthcare associated infection (HAI) and blood stream infections as the deadliest HAI. The estimated burden is high, highlighting the need for continued investment in HAI prevention.

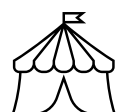


[Short- versus standard-course intravenous antibiotics for peri-prosthetic joint infections managed with debridement and implant retention: a randomised pilot trial using a desirability of outcome ranking \(DOOR\) endpoint](#)

(L. Manning, ..., **D. Dewar**, ..., **JS Davis**, July 2022, *International Journal of Antimicrobial Agents*)



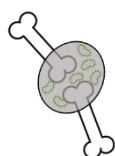
- ➔ Contributing author: A/Prof David Dewar (Mid-Career Representative of our program)
- ➔ Results of the PIANOFORTE RCT, which shows that early oral switch after 2 weeks is non-inferior to the standard 6 weeks of intravenous antibiotics for prosthetic joint infection treated with debridement and implant retention.



[Cost effectiveness of temporary isolation rooms in acute care settings in Singapore](#)

(N. Graves, Y. Cai, **B. Mitchell** et al., July 2022, *PLOS ONE*)

- ➔ Suggests that temporary 'pop-up' isolation rooms are a cost-effective, lifesaving intervention, that may further reduce healthcare costs in Singapore public acute care hospitals and other countries in the region.



[Characteristics and outcomes of culture-negative prosthetic joint infections from the Prosthetic Joint Infection in Australia and New Zealand Observational \(PIANO\) cohort](#)

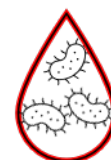
(**S. Browning**, ..., **JS Davis**, September 2022, *Journal of Bone and Joint Infection*)

- ➔ Lead author: Dr Sarah Browning (Early Career Representative of our program)
- ➔ Describes a cohort of patients with culture-negative prosthetic joint infections. They had better outcomes than culture-positive PJIs, and the EBJIS criteria were the least likely to miss them.

[Risk Factors for Nephrotoxicity in Methicillin-Resistant *Staphylococcus aureus* Bacteraemia: A Post Hoc Analysis of the CAMERA2 Trial](#)

(A. Legg, N. Meagher, ..., **JS Davis** and S. Tong, October 2022, *Clinical Drug Investigation*)

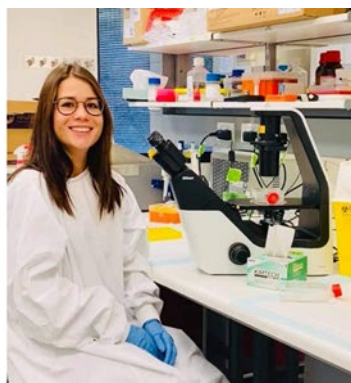
- ➔ Confirms that the Nephrotoxicity signal we saw in the CAMERA2 trial was largely driven by flucloxacillin/vancomycin combination therapy, particularly in those with higher vancomycin AUCs.





STAFF UPDATES

Welcome, Dr Camille Esneau and David Lambkin. Camille is a virologist who has joined our team for the remainder of the year and will be conducting lab work for our program. David is a statistician and working on the data of the **SNAP trial**, a clinical trial designed to identify the best antibiotics to treat blood stream infections caused by *Staphylococcus aureus*. Dr Natalie Niessen was offered a contract extension, and she is excited to follow the journey of the Infection Research Program in 2023 and to keep you all updated!



If you have read this far, thank you for your interest in our Research Program! Now we would love to hear from you! Do you have any exciting news that you would like to share? This could be a recent publication or award (since January 2022), the procurement of new equipment, the commencement of a clinical trial, suggestions and ideas for a new project, or anything you think might be of interest. We would also like our group affiliates to get to know each other better and will introduce 1-2 affiliates in each Newsletter. If you would like to be featured in our next edition, please send through a little blurb about your research area, your personal interests, and a photo of yourself by the 15th of January 2023. For any contributions, questions, or feedback, please contact Infection@HMRI.org.au.

Until then, have a COVID- and germ-free Christmas Break and Happy Holidays!

Natalie, Josh and Brett

