First researchers announced for accelerator program tackling sepsis, stroke, IVF and hearing

The Hunter Medical Research Institute (HMRI) has announced the first group of innovators selected for the Newcastle Permanent Innovation Accelerator Program, with projects aimed at faster sepsis detection, safer stroke treatment, improving IVF success, and monitoring hearing through everyday visual behaviour.

Launched earlier this year as the flagship initiative of the $2 million Newcastle Permanent Innovation Partnership, the program strengthens connections across the local network of innovators and organisations.

“At HMRI, we’re passionate about helping early-career scientists and clinicians turn their research into real-world healthcare solutions,” says Professor Frances Kay-Lambkin, HMRI Institute Director and CEO. “Thanks to the strong support of Newcastle Permanent this program gives participants the funding, mentorship, and industry connections they need to bridge key gaps in the innovation pipeline and bring their discoveries closer to the people who need them.”

Over 12 weeks, participants will follow a personalised program tailored to their own unique stage in the innovation pipeline covering healthcare systems, business planning, market analysis, and pitch development, culminating in a Demo Day where they will present to industry leaders and investors. At the conclusion of the program, each participant will receive $20,000 to help accelerate their project. One researcher will also be eligible for a prestigious $200,000 award to assist them in realising their plans and pathway to impact.

Accelerator program change makers
The inaugural cohort brings diverse expertise to address critical health challenges:

University of Newcastle’s **Dr Anna Behler** from HMRI’s Brain Neuromodulation Research Program is developing a tool that assesses hearing ability in real-world settings through visual behaviour monitoring. "Our approach enables hearing assessment during natural video-watching, better reflecting everyday abilities," Dr Behler explains. "It accommodates different language backgrounds and offers culturally appropriate stimuli for First Nations people, making hearing evaluations more accessible and leading to earlier problem identification."

University of Newcastle’s **Dr Gabrielle Briggs** from HMRI’s Injury and Trauma Research Program has created a new method for early sepsis detection that identifies bacterial components in blood samples in under 20 minutes. "Early detection can mean the difference between life and death," notes Dr Briggs. "The Briggs Test measures a patient's bacterial load using minimal blood with simple handling and low cost, making it ideal as a daily screening test for at-risk patients and potentially saving countless lives."

University of Newcastle’s **Dr Kirsten Coupland** from HMRI’s Heart and Stroke Research Program is pioneering a novel pharmacological approach to inducing hypothermia for improved stroke treatment. "Of all experimental therapies tested in stroke, hypothermia has the strongest evidence for reducing injury," Dr Coupland shares. "Our method could transform treatment by overcoming the difficulties associated with existing cooling methods."

University of Newcastle’s **Dr Aleona Swegen** from HMRI Infertility and Reproduction Research Program has developed SpermSafe, an innovative storage medium to enhance sperm survival and motility while minimising DNA damage during IVF procedures. "Currently, 75% of IVF cycles fail to result in pregnancy," Dr Swegen points out. "SpermSafe could significantly increase the chances of producing healthy embryos that are more likely to implant and result in successful pregnancies."

Backing local research for global impact
Professor Frances Kay-Lambkin, HMRI CEO and Institute Director, expressed pride in the calibre of the inaugural participants. "These four remarkable researchers have big ideas that could truly change lives.

“Thanks to Newcastle Permanent’s support, we’re giving them the help they need to turn these ideas into action. Their work could make a difference not just here in the Hunter New England region, but around the world, as we work towards our ambition of creating the healthiest million people on the planet."

"Congratulations to Anna, Gabrielle, Kirsten and Aleona. They are an impressive group, and HMRI is thrilled to support their rise as future leaders and changemakers," Professor Kay-Lambkin said.

Paul Juergens, spokesperson for Newcastle Permanent, emphasised the importance of putting community first. "Our members often tell us that health and wellbeing are among the most important things to them and their families. Listening to our community and acting on what matters to them is at the heart of how Newcastle Permanent approaches partnerships.

“This program has been built from more than 25 years in close partnership with HMRI, and we feel so honoured to be working together again to bring this program to life.

“By supporting HMRI and these researchers, we’re helping to turn promising ideas into real solutions that can make a lasting difference, not just here in the Hunter New England region, but in communities right across Australia,” said Mr Juergens.

Working together to drive better health solutions

Professor Chris Levi, Hunter New England Local Health District Executive Director Research and Innovation and HMRI Board Member, called the program "an important new initiative supporting our local scientists to develop innovative solutions that show considerable promise for future impact on major healthcare challenges in our district and beyond."

Warwick Dawson, Pro Vice-Chancellor of Industry and Engagement at the University of Newcastle, added "The Accelerator Program shows what is possible when research, healthcare, and industry work together. The University has nearly a decade of experience supporting founders, startups, and small enterprise through our Integrated Innovation Network I2N). We know what can happen when we connect great ideas with community, coaching, customers and capital – and we’re proud to bring our expertise to this initiative. By nurturing local innovators, we're strengthening our region's ability to translate great ideas into better health outcomes for our community."

For more information about the Newcastle Permanent Innovation Accelerator Program, visit hmri.org.au/accelerator.

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For further information and interview requests please contact:

Newcastle Permanent:
Eliza Davies: eliza.davies@newcastlepermanent.com.au
0421 783 080

HMRI Media and Communications:
Mike Collins: mike.collins@hmri.org.au
0415 809 347

Notes to editors – Researcher biographies

Dr Anna Behler
Dr Anna Behler is a Computational Neuroimaging Fellow at the University of Newcastle and member of HMRI's Brain Neuromodulation Research Program. As a physicist by training and specialised in magnetic effects, she earned her PhD at Ulm University Medical Centre, applying machine learning techniques to optimise magnetic resonance imaging for the diagnosis amyotrophic lateral sclerosis, a fatal neurogenerative disease. Besides neuroimaging and computational modelling, Dr Behler integrates vision into her research. She has used tracking of visuomotor responses to diagnose neurological conditions. Her passion for research brought her to Australia for her first postdoctoral position with the Systems Neuroscience Group in Newcastle.

Her innovative research focuses on "Assessing Hearing by Vision," a groundbreaking approach that analyses how people engage with videos and movies to objectively measure hearing ability in natural settings. This work directly addresses hearing loss, affecting nearly four million Australians and the largest modifiable risk factor for dementia.

Through strategic partnerships with leading national and regional organisations in hearing aid and clinical care, and medical device innovation, Dr Behler is advancing this technology toward clinical applications. Her multifaceted research interests combine computational modelling, neuroimaging, and eye movement analysis, which she views as a straightforward yet powerful window into brain function and neurophysiology.

Dr Gabrielle Briggs
Dr Gabrielle Briggs is the lead scientist working alongside the Trauma Service at John Hunter Hospital, where she also manages the Surgical Sciences Laboratory and is the deputy director of HMRI's Injury and Trauma Research Program. As a postdoctoral researcher at the University of Newcastle, Dr Briggs focuses on the complications and biology of severe trauma, investigating conditions such as coagulopathy, traumatic brain injury, sepsis, blood transfusion complications, and tissue regeneration.

Her work is distinguished by a translational approach, collaborating closely with clinicians to understand the challenges they face and applying her biomedical expertise to develop practical, real-world solutions. Her research projects span the development of novel biologicals for tissue healing, biomarker discovery in brain injury, and innovative diagnostics for joint infections and sepsis.

Dr Briggs is the creator of the *Briggs Test*, a novel diagnostic method designed for rapid bacterial detection in critically ill patients. This test is being validated through collaborations with the John Hunter Hospital's Intensive Care Unit and hospital pathology services and has the potential to revolutionise infection screening in acute care settings.

Dr Kirsten Coupland
Dr Kirsten Coupland is a Senior Lecturer in Human Physiology at the University of Newcastle's and a leading researcher in stroke and cerebrospinal fluid (CSF) biology at HMRI's Heart and Stroke Research Program. She is the only researcher in Australia dedicated to understanding how CSF and interstitial fluid contribute to stroke pathology.

Her research focuses on developing novel therapeutics by studying how fluid dynamics inside the brain affect recovery from stroke and neurological injury. Dr Coupland's team investigates topics including intracranial pressure regulation, hypothermia-mimicking drugs, statins' neuroprotective effects, and disrupted brain signals after stroke.

With over $1 million in NHMRC and industry funding as Chief Investigator, she employs cutting-edge techniques such as microsurgery, mass spectrometry, and confocal microscopy to reveal new targets for therapy. Her collaborations span leading institutions including CSL, University of Adelaide, Universität Bern, and Karolinska Institute.

A passionate educator and award-winning mid-career researcher, Dr Coupland is committed to translating discoveries into real-world clinical impact. Her personal experience with stroke in her own family fuels her mission to improve outcomes for patients through innovative, fluid-focused neuroscience.

Dr Aleona Swegen
Dr Aleona Swegen is an ARC DECRA Fellow at the University of Newcastle's Centre for Reproductive Science and member of HMRI's Infertility and Reproduction Research Program. A veterinarian by training, she completed her PhD in reproductive biology in 2017 and has since established herself as a leading researcher in reproductive biotechnology.

Dr Swegen's innovative work focuses on enhancing fertility outcomes, particularly through her groundbreaking SpermSafe technology. This novel sperm storage medium protects cells during IVF procedures, improving motility and reducing DNA damage to increase successful pregnancy rates.

With extensive experience at prestigious institutions including the University of Oxford and the Smithsonian Conservation Biology Institute, Dr Swegen has secured over $3 million in competitive research grants. Her work bridges laboratory research and practical applications through numerous industry collaborations including livestock breeders, veterinary clinics, thoroughbred and polo horse studs, and biotechnology companies. These partnerships have enabled Dr Swegen to ensure her inventions are targeted to clinical demand and rapidly utilised to advance breeding practices.

Beyond academia, Dr Swegen serves as a director at Burraduc Buffalo and has held leadership positions with scientific societies. Her translational research addresses critical challenges in both animal and human fertility, with a vision to apply cutting edge reproductive solutions to transform livestock industries, human IVF practice and wildlife conservation.