

STRATEGIC PLAN

2027-2031

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STRATEGY ON A PAGE

2027 - 2031 STRATEGY



VISION

Advancing pathogen genomics with transformative research linking policy and practice



MISSION

To enable effective and equitable implementation of pathogen genomics through collaboration and partnerships

VALUES



COLLABORATION



TRANSLATION



EQUITY



INTEGRITY

STRATEGIC PRIORITIES



Drive and innovate pathogen genomics research globally



Develop and deploy innovative bioinformatics methods, tool and platforms



Foster meaningful partnerships to enhance impact



Establish the Centre as a global leader in public health pathogen genomics

INTRODUCTION

STRATEGIC CONTEXT

Pathogen genomics is transforming the detection, surveillance, and control of infectious diseases globally. The Centre for Pathogen Genomics is a University of Melbourne Research and Research Training Centre focused on advancing innovative pathogen genomics research to address major infectious disease challenges and emerging threats. Through its multi-disciplinary network of expertise across genomics, bioinformatics, microbiology, epidemiology, public health, and evaluation science, the Centre is helping to shape the future of infectious disease preparedness and response. The Centre is also committed to supporting the next generation of research leaders, delivering impact and leadership in global health across the Asia-Pacific, and ensuring that the benefits of pathogen genomics are accessible to all.

The Centre is housed within the Department of Microbiology and Immunology, University of Melbourne at the Peter Doherty Institute for Infection and Immunity. This unique environment has enabled the Centre to rapidly position itself as a focal point for genomics-related opportunities for partnerships, collaboration, research, and capability building across the Department and the Institute, and the University more broadly. The future Australian Institute for Infectious Diseases will also provide new opportunities for the Centre to expand its leadership and impact in pathogen genomics.

The Centre was established in 2022 after the acceleration of pathogen genomics during the COVID-19 pandemic and the globally recognised need for innovation, implementation, and access to pathogen genomics to strengthen infectious diseases surveillance and response, and improve preparedness for emerging threats. Since its launch, the Centre has delivered innovative, high-impact research across AMR, tuberculosis, influenza and the microbiome, resulting in more than 80 peer-reviewed publications. The Centre also launched its inaugural Seed Grant Scheme to foster research partnerships across the Asia-Pacific region and continues to support the next generation of genomics leaders through its research training and global health activities. To date, the Centre has supported 16 PhD students and trained more than 150 scientists, bioinformaticians, epidemiologists, and policymakers across 19 countries as part of its growing Global Health community.

The Centre for Pathogen Genomics Strategic Plan 2027-2031 builds on the strong foundations established during the Centre's first five years. The Strategy outlines an ambitious agenda to strengthen multidisciplinary partnerships, drive innovation in pathogen genomics research, develop advanced analytical tools, and advance the Centre's position as a global leader in public health pathogen genomics. Collectively, these priorities will enable the Centre to deliver meaningful impact for infectious disease preparedness and response across Australia, the Asia-Pacific, and globally.

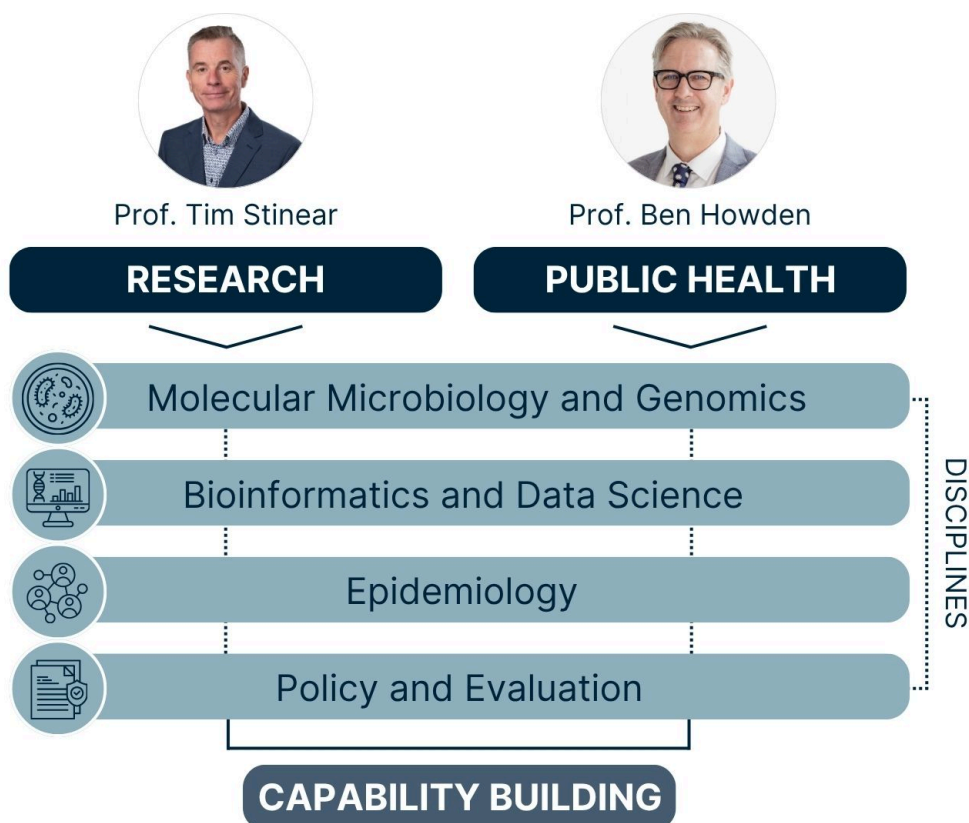


OUR FOCUS

The Centre's program of work is focused on using genomics to address major infectious disease challenges globally. Bringing together multidisciplinary expertise across research and public health, major areas of focus include antimicrobial resistance, pandemic threats, food and waterborne pathogens and respiratory pathogens including tuberculosis. The Centre strives to ensure that pathogen genomics delivers real-world impact through initiatives to strengthen capacity and capability, enable knowledge exchange, and improve access to and meaningful use of pathogen genomics, with a strong focus on the Asia-Pacific region.

ORGANISATIONAL STRUCTURE

The Centre's structure aims to foster inclusivity, improve alignment, encourage cross-disciplinary collaboration and build momentum around key areas of work and expertise. The Centre's two strategic pillars, Research and Public Health reflect the broad scope of the Centre's program of work and its integrated approach to advance pathogen genomics across these fields. Each pillar is underpinned by four Disciplines representing the specialised expertise of the Centre, and form groups that support cohesive coordination, collaboration, and engagement across the Centre. Capability building is embedded in each Discipline as a core function of the Centre's program of work.



SHAPING THE FUTURE OF PATHOGEN GENOMICS: STRATEGIC PRIORITIES

1. Drive and innovate pathogen genomics research globally

The Centre is committed to shaping the future of pathogen genomics through a world-leading research program that advances scientific knowledge and real-world impact globally through these action areas:

- Develop and expand the use of AI and other emerging approaches to understand infectious disease transmission and the impact of countermeasures
- Advance the application of metagenomics in clinical and public health microbiology
- Demonstrate and evaluate the utility of pathogen genomics for infectious diseases prevention and control
- Establish systems and processes to enable access to and harness the use of existing robust datasets for new research applications
- Develop and implement organisational and governance structures to effectively support a coordinated and sustainable research program

3. Foster meaningful partnerships to enhance impact

The Centre will actively develop and nurture partnerships locally and globally to enable high-impact research addressing complex infectious disease challenges through the following action areas:

- Establish frameworks and processes to support, strengthen and nurture long term partnerships
- Identify and cultivate new partnerships and collaborations to enhance the Centre's capabilities, breadth, impact, and reach
- Expand the Centre's programs of work through active engagement and communication with national and international research and donor funding agencies, philanthropy, and industry
- Enhance the profile and visibility of the Centre through a structured communication and engagement plan

2. Develop and deploy innovative bioinformatics methods, tools and platforms

The action areas below will enable the Centre to advance innovative bioinformatic approaches to analyse, visualise, and interpret microbial genomic data for research and public health impact.

- Develop and maintain world-class open-source software tools to address gaps in the microbial bioinformatics software ecosystem
- Establish a publicly accessible online microbial bioinformatics portal to support equitable access to data analysis capabilities
- Strengthen AI and machine learning capabilities to enhance microbial genomics data analysis
- Build data platforms that enable and promote secure and scalable data sharing, access, and use, to support open science and global cooperation

4. Establish the Centre as a global leader in public health pathogen genomics

The Centre will leverage its global reach and specialised expertise to support policy development, advocacy, and participation in initiatives that promote equitable access to genomic technologies through the following action areas:

- Strengthen global reach and influence through engagement and partnerships with public health laboratories, institutions, and networks
- Lead and contribute to programs of work that advance the implementation and impact of public health pathogen genomics
- Enhance access to and reach of training materials, protocols and guidance documents developed by the Centre to support public health implementation

MEASURES OF SUCCESS



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1. Drive and innovate pathogen genomics research globally

- Number and quality of research projects involving the use of AI or metagenomics
- Evidence demonstrating the utility and impact of pathogen genomics
- Evidence of the use of existing datasets to support new research applications
- Coordinated and sustainable delivery of the Centre's research program



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2. Develop and deploy innovative bioinformatics methods, tools, and platforms

- Number of methods, tools, and platforms developed or enhanced
- Accessibility, uptake and use of Centre tools and platforms
- Evidence of the use of AI and machine learning for microbial genomics data analysis
- Evidence of responsible data sharing enabled by Centre platforms



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3. Foster meaningful partnerships to enhance impact

- Diversity of disciplines, teams and partner organisations contributing to Centre activities
- Number and quality of multidisciplinary research partnerships
- Total funding secured and diversity of funding sources
- Evidence of increased profile, visibility, and engagement with the Centre



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4. Establish the Centre as a global leader in public health pathogen genomics

- Contributions to policy briefs, guidelines, and advocacy, with evidence of uptake and influence
- Leadership and contributions to global initiatives advancing public health pathogen genomics
- Accessibility, uptake, and use of Centre-developed training materials, protocols, and guidance resources



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