



Kirby Institute

Working to eliminate infectious
diseases, globally



The Kirby Institute is a world-leading health research institute at UNSW Sydney.

We work to eliminate infectious diseases, globally.

Our specialisation is in developing health solutions for the most at-risk communities. Doing so ultimately builds a safer, healthier world for everyone.

At its core, **our mission** is very simple:
to ensure no infectious disease
is left unchallenged.

Focused in Australia and the Asia-Pacific region – but with global impact – our work improves human health and wellbeing.

By understanding the way infectious diseases behave from the molecular through to the population level, we are also able to predict and plan for future threats and challenges.



Our approach

We discover, develop, implement, and evaluate solutions to infectious diseases.

What makes these solutions unique is that they are designed to be scaled for maximum impact across diverse communities, populations, and regions. We do this via a highly successful three step approach:

- 1 Understanding:** the impacts of infectious diseases in individuals and populations.
- 2 Intervention:** an holistic approach to developing, testing, and evaluating new strategies to prevent and treat infectious diseases.
- 3 Implementation:** a consultative approach to working with affected and at-risk communities to deliver evidence-based health solutions.



Empowering people to be co-architects in their own treatment journey motivates long term success.

Robert Monaghan, Aboriginal and Torres Strait Islander Health Research Manager



Populations

We prioritise the health of those most in need.

All people deserve equal access to high-quality health care, no matter who they are, where they were born, or which communities they belong to. Yet too often, those most at risk miss out.

By working with communities most affected by disease, we are able to explore and implement more effective solutions that benefit all.



Values

At the Kirby Institute, it is not just our outcomes that we are renowned for – it is also how we conduct our research.

There are four values that are key to our success. They drive everything we do:

Equity

We believe all people deserve equal access to high-quality, accessible, and appropriate health care and prevention services.

Impact

We work with people, for people. This ensures our research will have a direct impact, through transforming healthcare practice and policy.



Collaboration

We work with a diverse range of partners, including at-risk communities, governments, health care professionals, other research organisations, and industry, in Australia and abroad. This results in better-informed research and more effective solutions.

Excellence

We are committed to producing research that is innovative, rigorous and reliable. Our excellence in research not only serves to inform the best possible solutions; it elevates our work to the global stage where it can transform health and save lives.



HIV

We have made major contributions to the health and lives of people impacted by HIV. We continue to work to prevent HIV transmission and to improve health outcomes for people living with HIV, in Australia and globally.

HIV was once a fatal disease for virtually everyone who acquired the infection. The treatment revolution that began in the mid-1990s has now turned HIV into a chronic manageable illness for those with access to the necessary medicines. But for many people in low- and middle-income countries, effective treatments are still not available. An even bigger gap is access to drugs to prevent HIV infection (also known as “PrEP”), the strategy that has been so successful for prevention in high-income countries like Australia.

The Kirby Institute conducts HIV research across a broad range of research disciplines, including the laboratory, clinical trials, public health and social science. Since the early days, together with affected communities, we’ve developed health solutions that improve the lives of people living with HIV and prevent onward transmission.

The Kirby Institute has been involved in the development and assessment of virtually every new HIV medication since the epidemic emerged, ultimately leading to the current highly effective, safe, one-pill-a-day treatment.

Our work in HIV has a global impact

In order to optimise HIV treatment, from 2011 we led a successful global clinical trial called ENCORE that proved that lower doses of important antiretroviral drugs worked as well as the standard doses. This led to a drop in treatment cost and greater global access to essential drugs for people with HIV.

There had been a long debate about how soon people with HIV should start taking antiretroviral drugs. With our global clinical network, we co-led a trial from 2009 called START which showed that the sooner treatment is commenced, the better it works at keeping people healthy. This treatment suppresses virus levels in most people, ensuring that they cannot transmit infection to others. These studies have informed global treatment guidelines which have saved lives.

Beginning in 2016, we led one of the world’s largest implementation trials of pre-exposure prophylaxis (PrEP), a medication that prevents the transmission of HIV. This study led to a decline of almost one third in HIV transmissions in gay and bisexual men in NSW.

Underpinning this work are our state-of-the-art laboratories, in which our researchers have been working for over three decades to understand how HIV attacks the immune system and how the body responds, which is critical to developing treatments – and ultimately, a vaccine and a cure.

We continue this important work in HIV today – seeking the best possible prevention strategies and treatments, and importantly, striving for universal access to these critical healthcare tools.



Our work began with HIV.
What we've learned we
now apply to solve all
infectious diseases.

Hepatitis

Hepatitis impacts some of the world's most vulnerable communities, but life-saving preventions and treatments are not widely accessed. We work to ensure equitable access to hepatitis B and C prevention, treatment, and care.

In Australia, newborn infants are vaccinated to give lifetime protection against hepatitis B and we now have medications that can control hepatitis B and cure hepatitis C. However, these viruses remain a considerable public health challenge. Stigma and discrimination continue to be experienced by the populations most affected by hepatitis B and C, presenting a barrier to treatment access.

At the Kirby Institute, our research on viral hepatitis encompasses immunology, virology, surveillance, epidemiology, prevention, and treatment.

Our hepatitis C clinical trials have contributed to global guidelines on the treatment for hepatitis C. We led the first international trial of 'direct-acting antiviral' hepatitis C treatments among people with ongoing injecting drug use, which has helped overturn restrictions on access for this population in many settings globally. In Australia, we are leading a world-first, large-scale trial into whether effective treatment can prevent transmission of hepatitis C; and for more than 25 years, our Australian Needle and Syringe Program Surveys have tracked Australia's harm reduction efforts against both HIV and hepatitis C and informed health policy and service design.

Our research process involves close partnerships with affected communities, and together we are working towards the elimination of hepatitis C in Australia.

**We put communities
at the heart
of our research.**



A large, dark, textured image with a triangular cutout on the left side. The image shows numerous small, light-colored, circular particles, likely representing HPV virus particles, against a dark background. A white rectangular box in the upper right corner contains the text "HPV".

HPV


Human papillomavirus, or HPV, is an infection that can lead to cancers including cervical cancer and anal cancer. At the Kirby Institute, we work to evaluate and improve vaccination and screening programs designed to eliminate HPV before it progresses into cancer.

Australia has a longstanding screening program for cervical cancer and is a world leader in the rollout of the highly effective HPV vaccine. This has been administered by a national school-based immunisation program since 2007 and should ultimately eliminate cervical cancer in our population. But in neighbouring countries in our region, access to both screening and vaccine is limited, and cervical cancer remains a significant public health challenge.

Papua New Guinea has among the highest rates of cervical cancer globally, with an estimated 1,500 deaths per year. To combat this, our researchers, in collaboration with local researchers at the Papua New Guinea Institute of Medical Research, are trialling new technologies based on rapid HPV testing that will allow women to undertake cervical screening and treatment during a single visit at a local clinic, enabling early detection of the virus, before it leads to cancer. This work will save lives.

Gay and bisexual men are at particular risk of anal cancer from HPV infection – especially individuals living with HIV. Our researchers are working to better understand how HPV leads to anal cancer, with the aim of informing guidelines for targeted screening, to detect anal cancer precursors caused by HPV before they become cancerous. We also work within our extensive clinical networks to deliver state-of-the-art training to GPs in the latest anal cancer screening technique.

Our researchers are continuing to evaluate the effectiveness of the National HPV Vaccination Program by tracking changes in rates of infection and genital warts, both of which are early indicators of vaccine effectiveness.



Sexual health

Public health surveillance of bloodborne viruses and sexually transmissible infections.

We are experts in the collection and analysis of health data. In close collaboration with the Australian Government Department of Health and health departments in all states and territories, we produce a series of important surveillance reports on infectious diseases in Australia.

For more than two decades we have produced the *Annual Surveillance Reports on HIV, viral hepatitis and STIs*. These provide the national data on trends in diagnoses, incidence, morbidity, care, testing and prevention. We also produce a separate Aboriginal and Torres Strait Islander report that delves into the specific risk factors in trends in Aboriginal and Torres Strait Islander populations.

This work helps all of us – from governments to the community – to track and understand the impacts of infectious diseases, all of which are crucial for the effective delivery of national public health policies and programs.

Sexual health is the ability to engage in sexual activity in a way that maximises physical, mental and emotional wellbeing. Our work focuses on understanding and optimising sexual health in Australia and within our region.

Our research at the Kirby Institute is dedicated to understanding, preventing and curing sexually transmissible infections (STIs). STIs like chlamydia, gonorrhoea and syphilis are common infections that can lead to serious complications if left untreated. These STIs are easily cured by antibiotics, but often occur with few if any symptoms, and can only be detected through specific tests. Therefore, the solutions for communities often come down to finding the most effective ways to provide access to testing.

But we don't just investigate the medical aspects of these infections – we also focus on how people understand and look after their sexual health, including the different ways they have sex. This includes understanding the needs of gender and sexually diverse minorities, the relationship between sex and disability, and areas like sexual coercion, reproductive health, relationships, and human rights.

Our strengths in sexual health help to distinguish the Kirby Institute from other infectious disease institutes. Our approach helps inform education and communication about STIs, and empowers people to have control over their sexual health.



Emerging
infections



Where does our passion
for this work come from?
We are driven by the
vision of a world free of
infectious disease.

Professor Anthony Kelleher,
Director of Kirby Institute



A rapid response to COVID-19

When COVID-19 emerged in early 2020, we quickly mobilised our teams to bring our collective knowledge, experience and collaborative networks to support local, national and global efforts to control the virus. Deploying our full range of infectious disease expertise, we were able to rapidly repurpose our laboratories and adapt our clinical trial, public health and social science research strategies to address critical questions and seek appropriate health solutions.

This rapid response allowed us to delve into the new virus and better understand how it works, supporting global efforts to find ways to prevent transmission and treat people with the infection.

Our experts continue to monitor threats to Australian and global biosecurity to ensure we are as prepared as possible for the next infectious disease emergency. We will continue to respond quickly to emerging infections and epidemics as they arise.

COVID-19 has shown us how a local outbreak can become a global pandemic. In order to stay ahead of these crises, we need to be able to predict and plan for future threats and challenges. We do this by analysing and modelling epidemics, and by developing and testing diagnostics and interventions that prevent the spread of disease.

The Kirby Institute has wide-ranging expertise in the fields of infectious diseases and epidemic response. We also have a strong track-record in developing and evaluating solutions to infectious disease threats that can be scaled for maximum impact across diverse communities and populations. As with all of our work, we put those most at risk at the heart of our research, to design and evaluate tests, treatments and cures that have the greatest chance of success.



Aboriginal and Torres Strait Islander health

Some of our most important work starts at home. We work in close collaboration with Aboriginal and Torres Strait Islander health services on solutions for key health issues.

Many infectious diseases impact Aboriginal and Torres Strait Islander peoples at higher rates than non-Indigenous Australians, particularly in rural and remote communities, which face particular barriers to health access. The Kirby Institute supports the principle of self-determination for the development and delivery of health solutions for Aboriginal and Torres Strait Islander communities.

Working alongside Aboriginal and Torres Strait Islander community-controlled health organisations, our research has successfully introduced ‘point-of-care’ testing systems for chlamydia and gonorrhoea to remote Aboriginal communities. These point-of-care tests give results to the patient within an hour, so in the case of a positive test, treatment can begin immediately. Previously, patients had to wait days for specimens to be shipped to far-away laboratories. Receiving immediate curative treatment reduces the severity of the infection and decreases the likelihood that it will be passed on.

This innovative testing program has also been used for on-the-spot testing for SARS-CoV-2 in remote Aboriginal and Torres Strait Islander communities during the COVID-19 pandemic. This program ensures that a positive case of COVID-19 can be quickly identified and contacts isolated.

In other projects, we work with health services to better understand the sexual health experiences and support needs of young Aboriginal people, to develop effective ways to improve sexual health and wellbeing. We partner with other research organisations in the Centre for Research Excellence in Aboriginal Sexual Health and Blood-Borne Viruses, and lead the National Trachoma Surveillance and Reporting Unit (NTSRU) which is responsible for tracking the impact of Australia’s strategies to eliminate trachoma, a treatable infectious disease which causes blindness, from remote communities.



Our health solutions target global problems and have global impact. We use best practice research methods, adapted to meet urgent health needs in our region, such as neglected tropical diseases and antimicrobial resistance.

Preventable infectious diseases contribute to a major burden of illness and death around the world. Our global health research encompasses areas in which we have had a longstanding impact, such as HIV, which remains a major problem in many low- and middle-income countries. Increasingly, we contribute to global knowledge of neglected tropical diseases, including scabies, trachoma and intestinal worms; debilitating conditions which typically affect the poorest communities, most often in remote, difficult to access regions.

At the Kirby Institute, we have established strong partnerships, particularly in the Asia-Pacific region, to find practical and meaningful solutions to these global health challenges. We work collaboratively with local researchers to empower them with the expertise they need to conduct world-class research in their own communities, and increasingly to act as regional research hubs in their own right.

Together, we are ultimately creating a healthier, safer world for everyone.

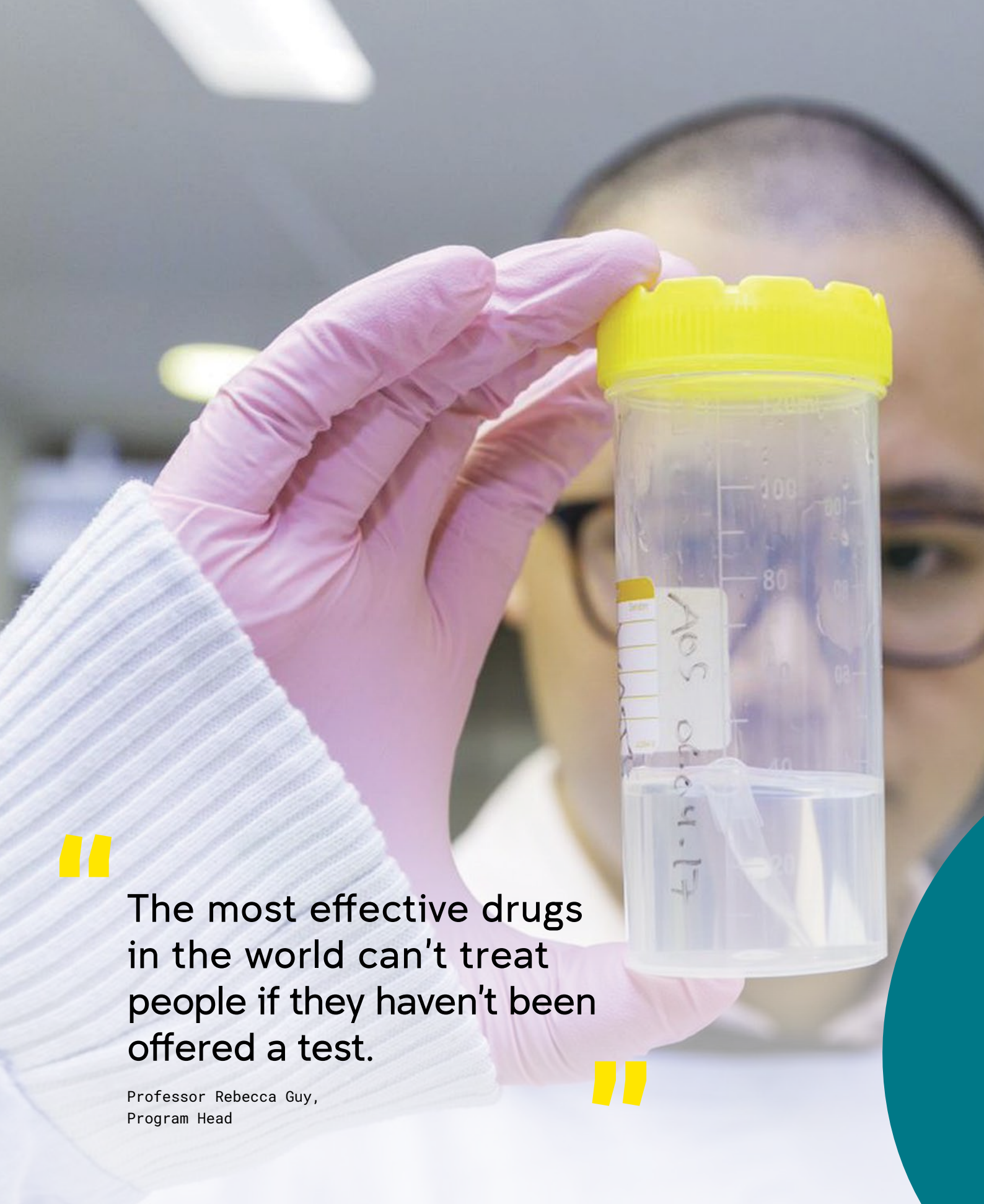
Kirby Institute initiatives include:

- the Myanmar Australia Research Collaboration for Health (MARCH)
- a multidisciplinary collaborative relationship with the Papua New Guinea Institute of Medical Research
- the policy-guiding AIM and SHIFT collaborations in Fiji and Solomon Islands to eliminate scabies and impetigo
- establishment of a now self-funding clinical research institute in Thailand (HIV-NAT)

We have established a major collaboration across a number of Asia-Pacific countries to combat the emerging global priority of antimicrobial resistance which, if not addressed, may render a number of our key antibiotics ineffective.

This collaboration brings together academic researchers with industry partners to find new accessible, simple and rapid tests to detect the emergence of antimicrobial resistance more promptly, and develop new drugs that can effectively treat organisms that have developed resistance.

At its core, our global health research is driven by the concept of two-way capacity building. Through our partnerships and mentoring programs, we are training the next generation of infectious disease experts around the world. At the same time, we learn from our partners about how to work effectively in the settings that they know best.



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The most effective drugs in the world can't treat people if they haven't been offered a test.

Professor Rebecca Guy,
Program Head

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Want to know more?

For more information on our work and how you can get involved, visit our website

 kirby.unsw.edu.au

Have a question?
Get in touch with our team

 info@kirby.unsw.edu.au

 +61 (2) 9385 0900

 Kirby Institute
Bidjigal Country
Level 6, Wallace Wurth Building
UNSW Sydney NSW 2052
Australia

How you can support us

Your generous support will help us save lives.

It is through the generosity of our supporters that the Kirby Institute is able to deliver cutting-edge research that is improving health outcomes in Australia and around the world. You can donate to us at kirby.unsw.edu.au/donate



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