



Kirby Institute Annual Report 2023



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

We work to eliminate infectious diseases, globally. Focused in Australia and the Asia-Pacific region, our work improves and protects human health, wellbeing and ability to thrive.



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The Kirby Institute at UNSW Sydney is located on the Traditional Lands of the Bidjigal Peoples.

We acknowledge the Traditional Owners of Country throughout Australia, and Aboriginal and Torres Strait Islander people's continuing connection to culture, land, sea, waters, and community.

We pay our respects to Elders both past and present.

Message from our Director

Scientia Professor
Anthony Kelleher



I am delighted to present the 2023 Kirby Institute Annual Report, in which we hope to reflect a very busy, productive and exciting year. As we returned for the most part to conducting our work in person following three years of pandemic disruption, it was wonderful to see the Kirby Institute building become a hive of activity once again, allowing in-person connection with colleagues and stakeholders through work and our annual events.

We were honoured to have our Patron, the Hon Michael Kirby, deliver this year's David Cooper Lecture. In it, he shared his insights on the intersection of health and human rights; the pursuit of which he has dedicated much of his life to, and which connected him with his longtime friend, David Cooper. His words energised us to continue to challenge stigma with evidence across all aspects of our work.

Our staff and students continued to succeed and excel; there were an exceptional number of grants awarded throughout the year, especially to our early- and mid-career researchers, and we celebrated a number of awards and achievements, both at UNSW and externally. Professor Gail Matthews was appointed Chair of STRIVE, a global clinical trials 'network of networks' which aims to respond rapidly to the next pandemic. Further, Professor Miles Davenport and his team were named Eureka Prize finalists for their global policy-informing COVID-19 immunity research.

2023 also brought the International AIDS Society's bi-annual Scientific HIV Conference to Australia, and with it, researchers, advocates, government representatives and community members from around the world. We were honoured to host some of the world's leading HIV scientists at the Kirby Institute for a daylong symposium ahead of the conference. In Brisbane, we also co-hosted a forum with the Australian Government Department of Foreign Affairs and Trade and leaders in our region to discuss progress towards ending AIDS in Asia and the Pacific by 2030.

We also initiated the process of developing the Kirby Institute's next strategic plan, which will commence in 2024. The infectious disease landscape is in constant flux, and emerging challenges, including the need to redouble efforts to meet the 2030 World Health Organization targets for control of a range of infectious diseases, mean that research institutions like the Kirby Institute need to be responsive. Our new strategy will ensure we can continue to be nimble and have an impact, as we were able to do when COVID-19 hit.

We continued to produce the highly impactful research our institute is known for. In this report, you will read about the broad range of research we undertook in 2023. To boost innovative vaccine and therapeutics development and expand access globally, we are leading an academic industry consortium called BRIDGE, bringing together Australia's leading institutions in RNA and drug development. We are also involved in a multitude of collaborative partnerships, in Australia and globally, which are addressing infectious disease challenges – whether it be to eliminate cervical cancer in the Western Pacific, or to rapidly test for and treat respiratory viruses in remote Aboriginal and Torres Strait Islander communities. It is through respectful multidisciplinary collaboration that the unique needs of communities can be met, and we can mitigate the impact of infectious diseases and improve health overall.

I hope you enjoy reading about 2023 in review.



Message from our Patron

The Honourable
Michael Kirby AC CMG



In 2023, the Kirby Institute played a leadership role in responses to serious health crises that have had an impact on the Australian community and far beyond, including the AIDS pandemic, the COVID pandemic and the mpox epidemic. The work of the Kirby Institute in these and other activities has been original, creative, scientific and communal. Human society, including in Australia, must learn to stay in front of pandemics and epidemics. This is a challenge that the Kirby Institute has accepted with intelligence and creativity.

The Kirby Institute has always helped to pioneer the intersection of health and human rights. This was the approach of our inaugural Director, and my much-loved friend, the late Professor David Cooper AC. I was honoured to deliver the David Cooper Lecture in 2023 in which I drew on my reflections, personal and professional, as to the expanding relationship between human rights and disease control. As each year goes by, we remain inspired by what we learned from David Cooper and from the scientists and clinicians who worked with him.

I also pay tribute to Associate Professor Garrett Prestage and Professor Basil Donovan AO on the occasions of their retirements. They each adopted a community-centred, rights-based approach. This was radical, even revolutionary, at the start. But it was significant and impactful. We celebrate these two exceptional scholars and teachers on their magnificent careers.

I congratulate a number of the Kirby Institute's key and emerging leaders on their professional promotions in 2023. Director, Anthony Kelleher, as well as Andrew Grulich, were promoted by UNSW to Scientia Professors: the highest academic accolade the University can confer. As well, Kathy Petoumenos was promoted to Professor, and Deborah Cromer was promoted to Associate Professor. These and other promotions are a testament to the superb talents that work at the Institute.

Also in 2023, one of the Institute's significant benefactors died: the late philanthropist and entrepreneur, Charles Feeney AC, who gave away his fortune through Atlantic Philanthropies, prior to his death. Amongst Chuck Feeney's donations, cherished by the Kirby Institute, was the funding that facilitated the development of the Institute's home in the Wallace Wurth Building at UNSW's Kensington

campus. At a public occasion, held in the Institute, I paid tribute to Chuck Feeney. His example is commended. It stands before us all.

Another fine supporter, Lord Glendonbrook, funded important new research into anal cancer, one of Australia's neglected cancers. With the Glendonbrook funding, the Kirby Institute is leading a national program aimed at significantly reducing the burden of anal cancer among people living with HIV. They are at particular risk. I thank Lord Glendonbrook for his stalwart support.

The Kirby Institute has also been at the forefront of research concerning the COVID-19 pandemic and mpox. Although the world may consider that it has prevailed against these two fearsome dangers, it is essential that the Institute should remain at the forefront of scientific and behavioural research that allows our country and region to respond quickly and effectively. And to learn from these responses for other pandemics that may be just around the corner.

As a result of current pandemics, the Australian community finds itself provided with enhanced connections. These have been fostered through collaboration, and original scientific, social and health research re-entered the public discourse. Early in 2023, the Australian Government demonstrated the tangible impact of the First Nations Point-of-Care Program for the health of regional and remote communities. The Kirby Institute hopes to participate in the substantial national effort to attack disease and disadvantage amongst Aboriginal and Torres Strait Islander communities. We will spare no effort to do this.

Heartfelt congratulations to Professor Anthony Kelleher, the Kirby Institute leadership, and all its staff and supporters for their success and productive impact in 2023. I am confident that 2024 will be even more successful.



2023 at a glance

We fight disease by spreading solutions.

Infectious diseases work by spreading through individuals, communities and populations. At the Kirby Institute, we deliver solutions the same way. As a world-leading health research organisation, we ensure communities are at the heart of our research. That way, we are better able to design tests, treatments, and cures that have the greatest chance of success, helping us to eliminate infectious diseases globally.

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.



Equity drives us.

Infectious diseases disproportionately affect marginalised populations. We work with at-risk communities, ensuring the most effective interventions and treatments reach those who need them the most.

In 2023, the Kirby Institute received:

\$42,000,805
from new and continuing external grants

\$11,600,632
in Australian Federal and State/Territory Government funding

\$5,660,987
in philanthropic funding



10
NHMRC Partnership Grants



4
NHMRC Clinical Trials and Cohort Studies Grants



11
Medical Research Future Fund Grants



24
active or newly awarded NHMRC Fellowships and Investigator Grants



3
NHMRC Ideas Grants



15
National Institutes of Health (NIH) Grants



5
NHMRC Centres of Research Excellence



2
ARC Research Grants



318
staff members



16
PhD completions



10
academic promotions



31
Kirby Institute Seminar Series talks held



76
postgraduate students



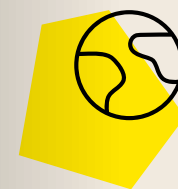
25
international postgraduate students from 16 countries



984
collaborations in 52 countries on 6 continents



678
peer reviewed publications



At the Kirby Institute, we speak **28** different languages at home; we hail from **28** different birth countries and identify culturally with **45** different ethnicities.



In 2023, the Kirby Institute had **over 3,000** media mentions across online, radio, print, TV, and magazine.

Our collaborations

We collaborate with organisations around the globe, creating solutions to health challenges and driving our collective research success into the future.

ASIA

SOUTH-EAST ASIA

- 22 Thailand
- 21 Indonesia
- 10 Vietnam
- 7 Philippines
- 4 Cambodia
- 4 Myanmar
- 3 Malaysia
- 2 Singapore

EAST ASIA

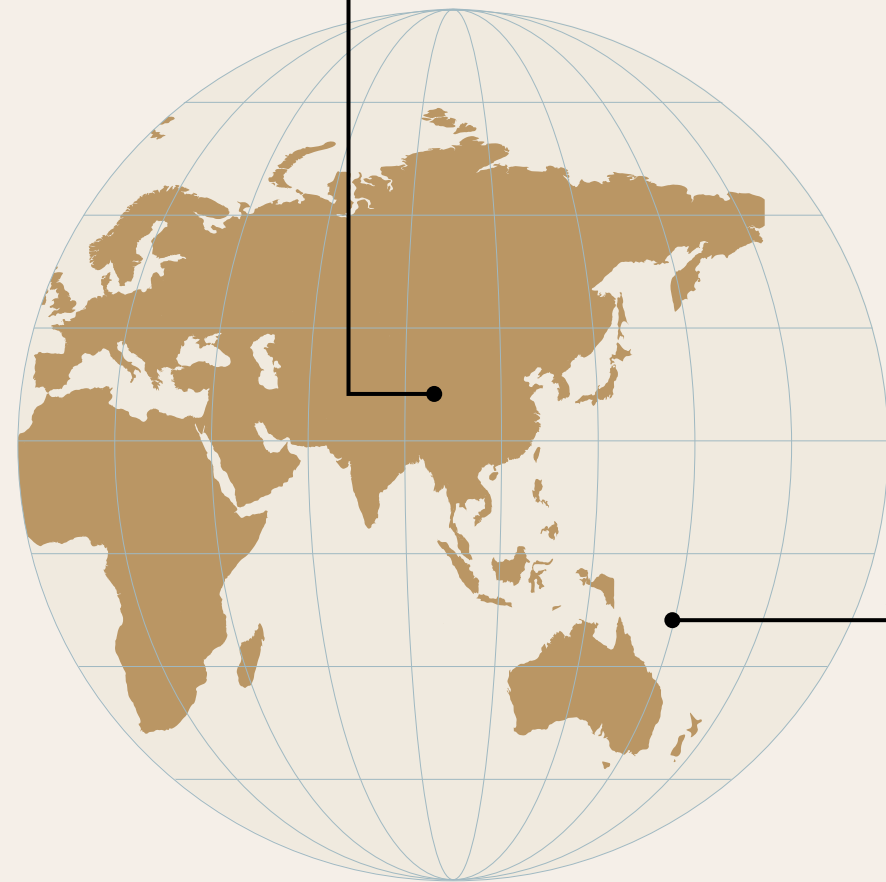
- 7 China
- 6 Japan
- 6 South Korea
- 1 Taiwan

SOUTH ASIA

- 9 India
- 1 Bangladesh
- 1 Pakistan
- 1 Sri Lanka

MIDDLE EAST

- 2 Iran
- 2 Israel



AUSTRALASIA

- 629 Australia
- 10 New Zealand

PACIFIC ISLANDS

- 20 Papua New Guinea
- 2 Fiji
- 1 Solomon Islands

AUSTRALIA

263 NSW	51 WA
84 VIC	44 NT
81 QLD	36 ACT
53 SA	17 TAS

NORTH AMERICA

- 71 United States
- 23 Canada
- 3 Mexico

EUROPE

- 29 United Kingdom
- 12 Switzerland
- 10 Germany
- 9 Netherlands
- 6 France
- 3 Norway
- 2 Belgium
- 2 Denmark
- 2 Spain
- 2 Sweden
- 1 Finland
- 1 Italy

SOUTH AMERICA

- 15 Argentina
- 1 Brazil
- 1 Chile
- 1 Colombia

AFRICA

NORTH AFRICA

- 1 Morocco

EAST AFRICA

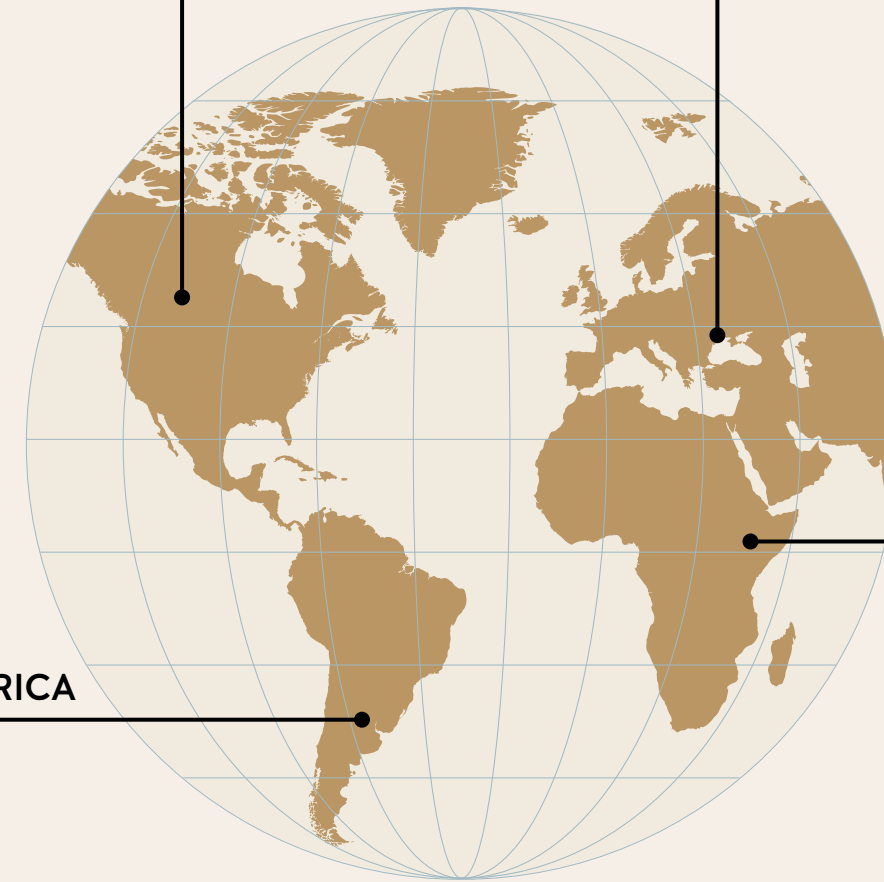
- 1 Kenya
- 1 Uganda
- 1 Zimbabwe

SOUTH AFRICA

- 7 South Africa
- 1 Mauritius

WEST AFRICA

- 3 Cameroon
- 2 Nigeria
- 1 Guinea
- 1 Mali



We collaborate actively with **984 organisations** in **52 countries** across **6 continents**



Strategic progress 2019–2023

The Kirby Institute's 2019-2023 strategic plan was designed to build upon the Institute's impressive track record and to prepare it to better respond to known and unknown future threats and opportunities.

Professor Adrienne Torda, Interim Dean of UNSW Medicine & Health says that the Kirby Institute's strategy was truly put to the test when the Institute had to dramatically shift and evolve to respond to the COVID-19 pandemic in 2020.

"The Kirby Institute should be incredibly proud of its progress over the past five years. To be able to meaningfully and significantly contribute to the COVID response – alongside consolidating existing areas of strength, and maintaining a strong focus of on health equity – speaks to the dedication of its teams, and the leadership and strategic foresight outlined in the plan. I congratulate Professor Kelleher and the Institute on this success and look forward to working in partnership over the next plan."

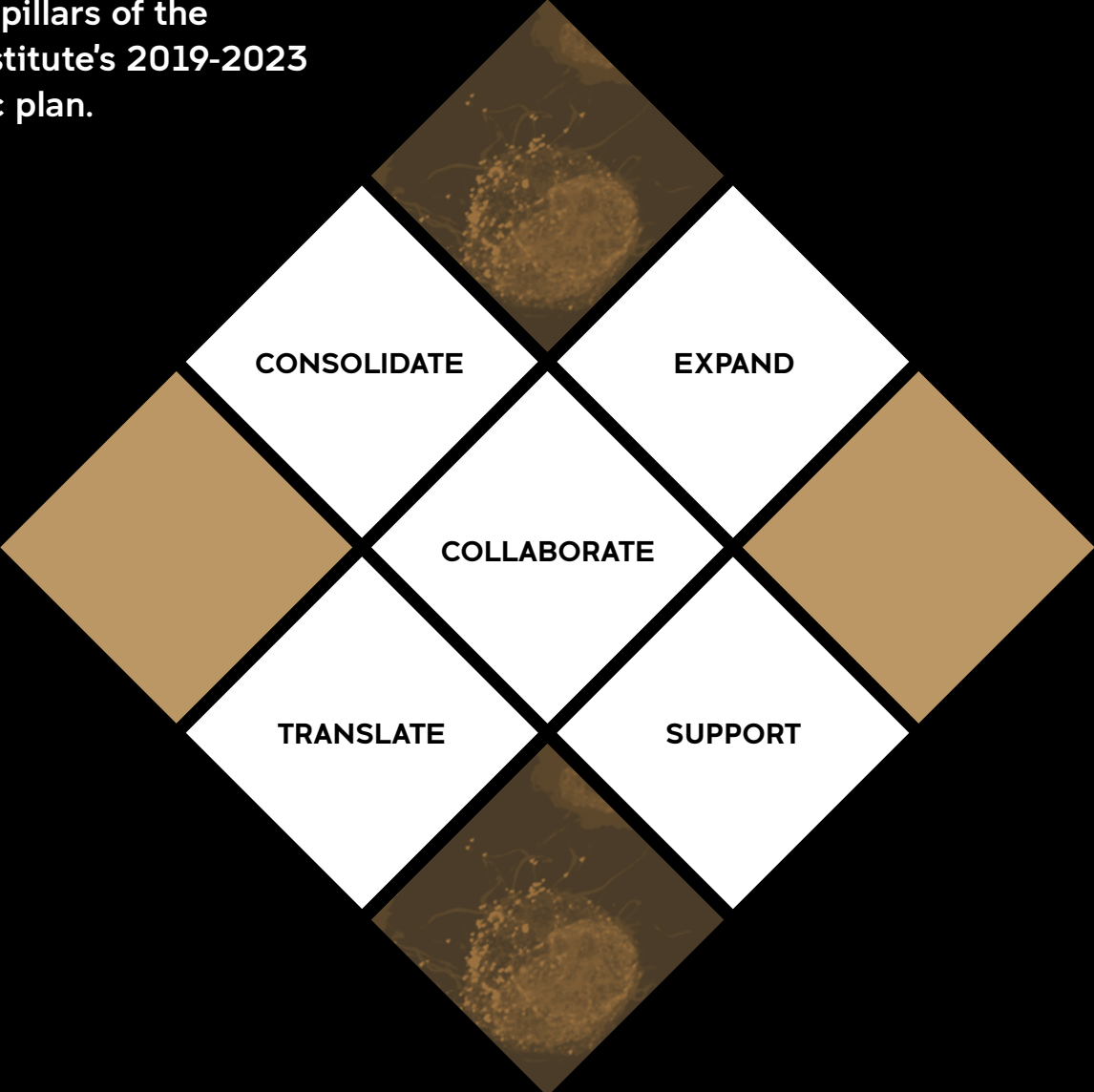
Kirby Institute Director Scientia Professor Anthony Kelleher said the strategic plan was executed during a challenging period marked by the rapidly spreading pandemic.

"Every single member of this Institute worked incredibly hard during the pandemic to offer our experience and expertise, gained from decades of research partnership responding to other infectious disease emergencies, to support the local and global rapid scientific response.

"Thanks to the dedication, determination, expertise and values of our staff and students, the Kirby Institute made critical contributions to the pandemic response, while still increasing our contributions in other areas of research.

"I am proud and humbled to lead such a dynamic, responsive and effective team."

The five pillars of the Kirby Institute's 2019-2023 strategic plan.

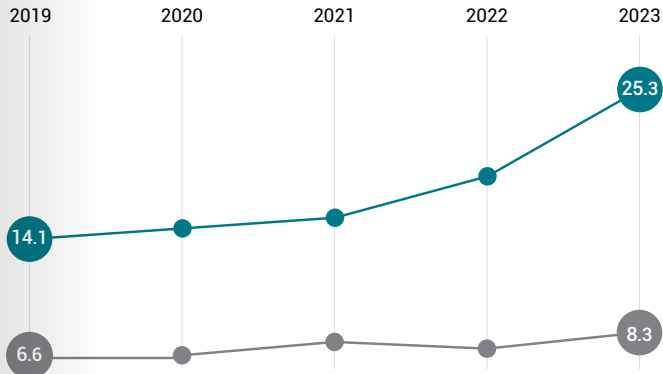


CONSOLIDATE

Foster scientific excellence and impact in current areas of strength.

Over the past five years, the Kirby Institute and its impact has grown significantly.

- > The Institute has published **3,401 journal articles**, with a substantial increase in the number of publications in prestigious top 1 percentile journals. These are journals that have the greatest impact on medicine, with publications from these journals having significant potential to change clinical practice to improve human health.
- > The Institute has attracted over **\$236 million in external grant funding** over the course of the plan, with a particular increase in funding from key competitive, peer-reviewed schemes (i.e. National Health and Medical Research Council (NHMRC), Australian Research Council (ARC) and Medical Research Future Fund (MRFF)).
- > The Institute's overall grant application success rate (the proportion of all successful grants per application) has increased significantly over the course of the plan. In addition, **the success rate for Kirby Institute grants submitted to the NHMRC (27 per cent) is double the national average.**
- > The Institute is educating the infectious disease leaders of the future, with over **100 PhD and Masters graduations from 2019-2023.**



● Major Australian competitive research grant funding – NHMRC/ARC/MRFF (in \$M)
● Top 1 Percentile Publications (%)
Based on the SCImago Journal Rank (SJR)

EXPAND

Research activities into new and related infectious diseases.

The Kirby Institute has expanded into many new research areas over the past five years. Here are just a few examples.

- > When COVID-19 emerged in early 2020, we quickly mobilised our teams and research infrastructure to bring our collective knowledge, experience and collaborative networks to support local, national and global efforts to control the virus. This rapid response allowed us to contribute important insights and understanding of how the virus caused disease, supporting global efforts to find ways to prevent transmission and treat people with the infection. The Kirby Institute now has a wide portfolio of COVID-19 research and our experts continue to monitor infectious disease threats to ensure we are as prepared as possible for the next emergency.
- > In August 2022, the Kirby Institute launched the Australian Research Council-funded **Industrial Transformation Research Hub to Combat Antimicrobial Resistance (AMR)**. AMR is one of the greatest scientific challenges of the 21st century. The establishment of the AMR Hub at the Kirby Institute is a new area of research that builds on our strong collaborations between universities, industry partners, and stakeholders, both nationally and internationally.
- > The Kirby Institute's work on neglected tropical diseases (NTDs) has expanded significantly and is a growing area of impact. Our researchers are leaders in the field and are making substantial contributions in our region. **The Kirby Institute's annual NTD grant income is 10 times higher in 2023 than it was in 2018.**
- > The Kirby Institute's biosecurity and epidemic preparedness research grew significantly, building on the existing work of the program and expanding in response to the COVID-19 pandemic. Over the course of the plan, the Biosecurity Program has attracted **\$15.6 million in competitive grants and philanthropy.**
- > In response to the emergence of mpox in 2022, the Kirby Institute quickly collaborated with community and government partners to set up a rapid research response. **We established the TraX study, supported by a generous donation from our Patron, Hon Michael Kirby, to provide timely information on the mpox vaccine rollout and determine the real-world effectiveness of the vaccine.** Australia avoided a major mpox outbreak, thanks in large part to collaborations like this between community, government, and research sectors.

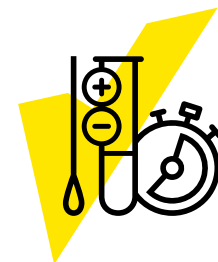
TRANSLATE

Ensure the ongoing translation of research into health policy and practice.

Kirby Institute research is designed in close collaboration with health services and community to ensure translation of findings into health policy and practice, to improve health and save lives. Highlights include:

- > We were the first to establish a correlate of protection for COVID-19. This work has been used to justify vaccine approvals based solely on surrogate markers of vaccine efficacy, **dramatically shortening the time to approval of new life-saving vaccines**. It has directly informed World Health Organization, Australian and North American decisions around the timing of booster vaccination and vaccine distribution.
- > The Kirby Institute co-led research investigating expanded access to HIV treatment to all people living with HIV who are ineligible for Medicare in Australia. Outcomes data and subsequent cost-effectiveness modelling underpinned the Australian Government's decision to **change policy to fully fund optimal antiretroviral treatment for people living with HIV who are ineligible for Medicare** in Australia from July 2022.
- > The Kirby Institute's new model for cervical cancer screening in remote locations was developed in Papua New Guinea (PNG), bringing together point-of-care testing for high-risk human papillomavirus types with same day curative treatment. It has now been **adopted in PNG and a number of other Pacific countries** as the core strategy for prevention of cervical cancer.

- > The Kirby Institute led an international trial of sofosbuvir/velpatasvir, the leading direct-acting antiviral therapy regimen for treatment of chronic hepatitis C. The favourable findings from the trial were submitted to the United States Food and Drug Administration **enabling a label change to include people who inject drugs within its indications**. This and other Kirby Institute-led trials have supported removal of illicit drug use-related reimbursement restrictions in many countries.
- > The COVID-19 point-of-care testing in remote Aboriginal communities program, co-led by the Kirby Institute and the Australian Government Department of Health and Ageing, **averted 4,564 hospitalisations, 346 intensive care unit admissions, and \$337 million in health care costs**, in the first 40 days after COVID-19 was identified in a remote First Nations community.
- > We performed detailed assessments of the risk of variant Creutzfeldt-Jakob disease (vCJD, or 'mad cow') transmission through blood donation. This work led the Australian Therapeutic Goods Administration to change the rule from July 2022 that prevented people who had lived in the United Kingdom during the vCJD outbreak from donating. In the six months after the deferral was lifted, Lifeblood reported that **almost nine per cent of all donations came from donors who were previously excluded for this reason**.



The COVID-19 point-of-care testing in remote Aboriginal communities program averted 4,564 hospitalisations, 346 ICU admissions, and \$337 million in health care costs.

COLLABORATE

Strengthen and expand collaborations and partnership.

- > **Strong community relationships** were maintained throughout the pandemic, and new relationships formed.
- > Kirby Institute Director Scientia Professor Anthony Kelleher led the UNSW Medicine & Health Infection, Immunity and Inflammation research theme, fostering **collaboration** across the Faculty.
- > The Kirby Institute is a **founding partner in the newly established cross-faculty UNSW RNA Institute**, to translate the potential of bioscience, chemistry and engineering into the products that will improve our health and the quality of our lives.
- > Professor Gail Matthews was appointed Chair of the Executive Committee of the Strategies and Treatments for Respiratory Infections & Viral Emergencies network, or STRIVE, a **major global collaboration bringing together excellence in clinical trial expertise and multiple experienced clinical sites** including a large number in low- and middle-income countries that can rapidly initiate clinical trials which will test the efficacy of new or repurposed drugs for outbreaks of new or existing problematic infectious diseases.
- > The Kirby Institute is collaborating with The Daffodil Centre (a joint venture between Cancer Council NSW and The University of Sydney), the Australian Centre for Cervical Cancer Prevention, and Family Planning Australia on a **major project to eliminate cervical cancer in the Western Pacific**.



The number of Kirby Institute global collaborations expanded from 680 to 984 over the course of the plan.

SUPPORT

Strengthen enabling systems and infrastructure.

- > As part of the strategic plan, the Kirby Institute established a process of **recognition and review of research groups**, which sit within our larger research programs. Led by outstanding, often early- and mid-career researchers with a track record in independent research leadership, they reflect the growing research scope and capacity of the Kirby Institute, and our commitment to fostering the research leaders of tomorrow. **We now have 25 research groups**.
- > In 2023, the Kirby Institute launched a **new website**, with an updated design and layout. We also launched a staff intranet to strengthen digital systems and communications through the hybrid working environment.
- > From 2019 to 2023, **our staff and student numbers grew from 313 to 394**.
- > We established the **Kirby Institute Equity, Diversity and Inclusion Committee** which has made a number of tangible changes to improve equity and diversity at the Kirby Institute.
- > Over the course of the plan, **the Institute has achieved UNSW gender targets at all staff levels**. From 2019 to 2023, the number of female professors at the Kirby Institute grew from three to eight, and females now represent 47 per cent of these positions, which are the highest academic level.
- > Over the course of the plan, our **Aboriginal and Torres Strait Islander workforce has grown from one to 10 staff members**.



More than **160 staff** have completed a full day of face-to-face Aboriginal Cultural Awareness and Safety training.

Our research



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.

World-first scale-up of hep C testing for equitable access to care

Australia has made great progress towards hepatitis C elimination, with an estimated 60 per cent of people living with hepatitis C having been treated, and major reductions in new infections and liver-related deaths since 2016. But there are still many people who are not accessing hepatitis C testing, so do not know their status and may be missing out on the life-saving treatments that are available nationally.

“In Australia, key populations affected by hepatitis C are people who inject drugs and people in prison, and there are a range of complex factors that can hinder access to health services. One of those challenges is the requirement for multiple healthcare visits,” explains the Kirby Institute’s Professor Jason Grebely.

This is where the National Australian Hepatitis C Point-of-Care Testing Program comes in.

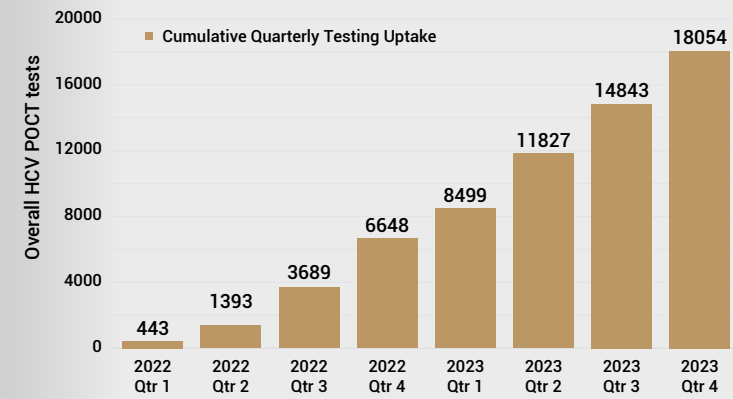
Point-of-care testing for current hepatitis C infection is a game-changing innovation that can deliver testing, results, and initiation of curative treatment if needed in a single, one-hour clinic visit. Prof Grebely is leading a team of researchers who are working in

close partnership with services across Australia including drug treatment clinics, needle and syringe programs, community health centres, and prisons, to scale up point-of-care testing for those at risk of hepatitis C.

In 2023, this involved working with health providers and other operators to train them in delivering the tests, and in what to do in the case of a positive result, such as connecting patients with care and recommending treatment.

“In the first 18 months of the program, we have performed 18,000 hepatitis C tests, diagnosed over 2,000 people, and treated over 1,400 people, which is having a huge impact on the health of these individuals and their communities,” says Prof Grebely.

Smaller trials of point-of-care testing among groups at risk of hepatitis C have demonstrated that it is a highly effective way of delivering highly accurate, swift, relatively mobile, and judgement-free testing, enabling people to know their status and commence treatment if needed. But for Australia to achieve the World Health Organization targets to eliminate hepatitis C as a public health threat by 2030, a national approach with broad access is needed.



Number of hep C point-of-care tests delivered within the National Australian Hepatitis C Point-of-Care Testing Program.

It is the first time internationally that point-of-care testing has been done at this scale and across such a range of health settings.

“Hep C elimination in Australia is entirely possible, and we know that point-of-care testing is one of the best ways to facilitate getting people tested, treated and cured,” says Prof Grebely. “With this program, we’re looking at the whole system of health delivery and targeting different strategies to specific priority groups, to boost access. Ultimately, we want to optimise point-of-care testing delivery in a range of settings and sustain the program into the future, to ensure those at risk are able to access it and get onto lifesaving treatment if needed.”

LEFT: Kirby Institute’s Anna Conway with a client at a point-of-care testing service. Image credit: Conor Ashleigh.

RIGHT: A finger stick blood sample for a hepatitis C point-of-care test. Image credit: Conor Ashleigh

Across 2022 and 2023, the Program:

-  Trained **258 providers** in point-of-care testing
-  Performed **18,008 point-of-care tests** (at 381 services)
-  Identified **2,114 people** with current hep C infection
-  Provided **hep C treatment** for **1,538 people**
-  **9%** of all hep C treatment in Australia now occurs through the program (**23%** in Queensland)



Also in 2023:

- > A Kirby Institute and World Health Organization review found that globally, an estimated 57 million people have chronic hepatitis C infection and each year, there are an estimated 1.75 million new infections.
- > The 2023 Australian Needle and Syringe Program (NSP) Survey, coordinated by the Kirby Institute, found that current hepatitis C infection declined markedly among those attending NSP services over the previous five years.
- > In response to the challenge of timely and efficient hepatitis C testing and treatment in prisons, the Kirby Institute’s PIVOT study demonstrated that a “one stop shop” for point-of-care testing, nurse-led clinical assessment and same day prescription of treatment was highly effective.

- > Dr Lise Lafferty was honoured with a 2023 Paul Bourke Award in recognition of her “significant contributions to the field of infectious diseases, with a particular focus on hepatitis C in the challenging context of prison settings”.
- > The ASCEND (Advancing the health of people who use drugs: hepatitis C and drug dependence) NHMRC program grant team held its annual symposium at the end of the five-year initiative; an opportunity to update colleagues and stakeholders on strategies and progress towards hepatitis C elimination and improving the health of people who use drugs.

Staying ahead of COVID-19: from molecules to populations

During 2023 Australia avoided lockdowns and social restrictions, thanks in no small part to the work of scientists, like those at the Kirby Institute, continuing to stay ahead of the pandemic.

Decoding variants in the laboratory

This year in the Kirby Institute laboratories, under the leadership of Associate Professor Stuart Turville, our teams kept track of each and every SARS CoV-2 variant and sub-variant, conducting experiments to understand how each new variant might interact with available vaccines and treatments.

"The Omicron era of the pandemic was characterised by widespread infection with a number of sub-variants, like BA.2.75 and BA.5, their sub-lineages," said A/Prof Turville, whose work was aimed at understanding whether the level and type of vaccination in Australia was robust enough to withstand the threats posed by these sub-variants.

"Whilst the variant 'soup' was of initial concern, they were all following a similar trajectory, with many clusters of key mutations being the same across each variant. In the lab we saw that they shared changes in the spike glycoprotein of the virus, which gave each variant an ability to evade and navigate neutralising antibodies better."

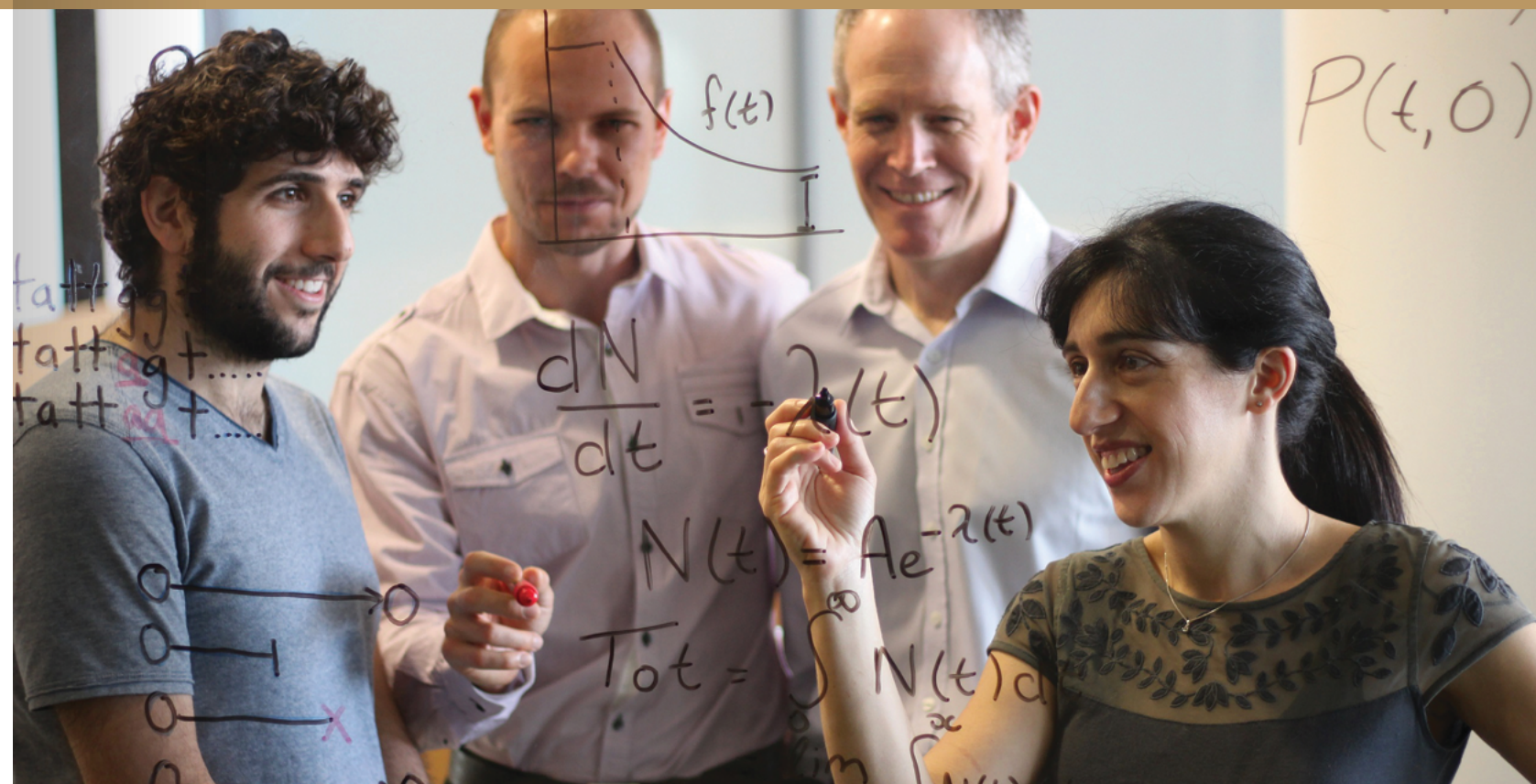
This research accurately predicted that despite high infection rates, severe disease and death would remain low.

Findings like this are shared in real time with state and national health departments, facilitating rapid translation of laboratory research into health policy. The ongoing collaboration has allowed for better data sharing and improved communication.

"A huge amount of work in the lab is involved to get a result like this.

Together we created and analysed thousands of tests against multiple variants, providing a significant contribution to Australia's understanding of our pandemic trajectory," says A/Prof Turville.

BELOW: Kirby Institute researchers in the high containment PC3 laboratory.



ABOVE: Members of the Kirby Institute Infection Analytics Program

Modelling to predict vaccine efficacy and inform vaccination strategies

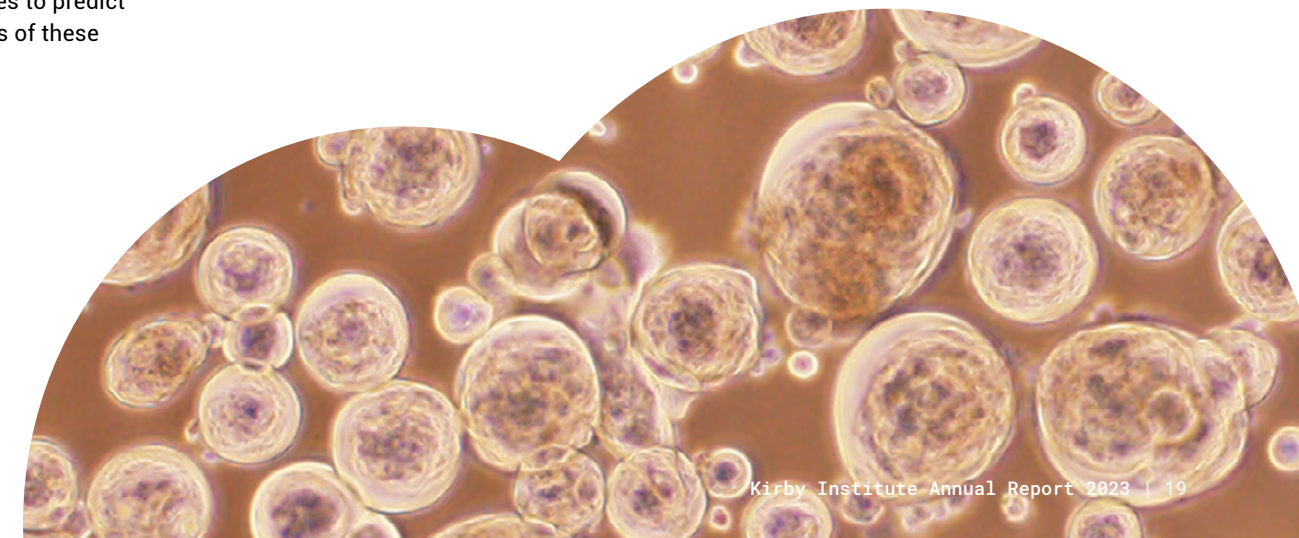
Just opposite the laboratory sits the Kirby Institute Infection Analytics Program, a team of modellers and mathematicians who analyse immunological data to understand and predict the effectiveness of different vaccination and treatment options.

In 2023, Associate Professor Deborah Cromer and her colleagues aggregated data from all available clinical studies that had administered booster vaccination with both ancestral-based vaccines and variant-modified vaccines to predict the relative effectiveness of these booster vaccines.

Their analysis was published in *Nature Medicine* and found that newer variant-specific bivalent vaccines offer on average 1.6 times better immunity against COVID-19 than the original, single-strain 'ancestral' vaccines.

The research was made available as a pre-print in November 2022 and was cited in vaccination statements from the Australian Technical Advisory Group on Immunisation (ATAGI) and World Health Organization.

"As we move into this next phase of the pandemic, it is important that the population remains well protected to reduce the spread of COVID-19, especially for those in our community who are most vulnerable. Our analysis provides evidence that boosting with any vaccine is an effective way to protect against COVID-19, although variant-specific vaccines offer slightly better protection," A/Prof Cromer says.





Dr Chantelle Ahlenstiel (left) and Dr Francesca Di Giallonardo.

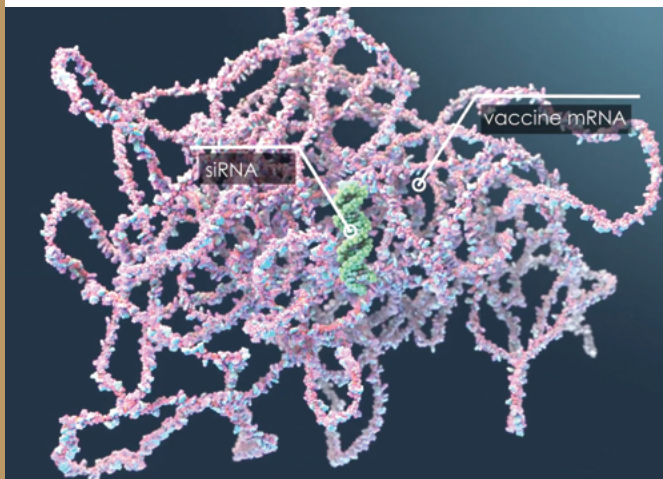
Universal siRNA COVID-19 treatment shows promise in the lab

The rapid development of vaccines and treatments for COVID-19 has been one of the most significant scientific achievements of human history.

But the existing treatments do not work well for everyone. Monoclonal treatments need to be re-developed as variants emerge. Repurposed antiviral therapies have side-effects, complex drug interactions, and need to be taken within five days of symptoms to be effective.

“People are still getting sick and dying from COVID-19,” says Scientia Professor Anthony Kelleher, Director of the Kirby Institute and an immunologist.

“There is an urgent need to develop long-term, sustainable, easily accessible antiviral solutions that target SARS-CoV-2 and that are resistant to mutations in the virus over time.”



Fortunately, a Kirby Institute team led by Dr Chantelle Ahlenstiel have been working on a promising treatment alternative. In collaboration with the UNSW RNA Institute, they are exploring whether a treatment can be developed using siRNA – or ‘short interfering RNA’.

What they've found so far from lab data in cells has the potential to treat COVID-19 infection better than existing antivirals; reducing virus levels up to 99.9 per cent for all variants of concern, and is more potent than existing treatments Sotrovimab and Remdesivir.

“Our research shows that siRNA treatment can target the virus in key regions that do not change as the virus evolves, which means it works across all current variants of concern. “Most importantly, we envisage that this will also work for existing and future SARS coronaviruses that emerge,” Dr Ahlenstiel says.

“siRNA can stop SARS-CoV-2 replication by directly targeting the virus itself, which means a recipient doesn't need a functioning immune system for the treatment to work. This will make siRNA an important treatment option for people with impaired immunity.”

“We now have promising data in a mouse model of COVID infection and we're hopeful that in a few years the siRNAs will be available as an easy and effective treatment option, allowing all of us, and in particular people who are immunocompromised, to live with COVID-19,” says Dr Ahlenstiel.

LEFT: siRNA works in the body by interfering and disrupting the protein production of hostile intruders like viruses. As seen in the figure, siRNA is much smaller than the mRNA used in vaccines.



ABOVE: Professor Gail Matthews.

Global clinical trials network leadership

The Kirby Institute will continue to play a significant role in the global development of infectious disease treatments with the appointment of Professor Gail Matthews as Chair of the Executive Committee for a major global collaboration called STRIVE (Strategies and Treatments for Respiratory Infections & Viral Emergencies).

STRIVE was established in 2022 in the aftermath of the COVID-19 pandemic, with the goal of bringing together multiple clinical trials networks under a broad international research collaboration. It is comprised of over 300 sites in over 40 countries across all inhabited continents globally.

“STRIVE will improve the clinical outcomes of patients with acute severe infections and be prepared to respond to infectious disease emergencies through the rapid implementation of clinical trials designed to inform practice guidelines, public health policy and the delivery of health care,” says Prof Matthews. “This global ‘network of networks’ incorporates substantial and long term expertise and experience in clinical trials, and aims to be an exemplar for an effective global trial ecosystem.”

RIGHT: Professor Raina MacIntyre and the EPIWATCH team in the EPIWATCH decision theatre.

Also in 2023:

- > The Kirby Institute's Biosecurity Program, led by Professor Raina MacIntyre, has developed the first non-English version application of their AI-driven rapid epidemic observatory, EPIWATCH, the open-source tool that provides pandemic early warning signals. The launch of the Hindi version of the tool was attended by Ruchicka Jain, First Secretary of Indian High Commission, Dr Michelle Ananda Rajah, infectious diseases physician and Member of Parliament, and Dr Andrew Charlton MP, Chair of the Parliamentary Friends of India.
- > The EPIWATCH program received a further a further \$2 million USDC in a philanthropic gift from Ethereum co-founder Vitalik Buterin, to support the development of EPIWATCH dashboards in Indian languages.
- > Professor Virginia Wiseman was awarded \$2.5 million for the establishment of a new NHMRC centre for Stronger Investments for Infectious Diseases (STRIDE), that will use innovative health economics techniques to comprehensively assess the significant health, social, and economic impacts of infectious disease interventions.
- > Professor Gail Matthews was awarded \$2 million to evaluate the safety and efficacy of unlicensed and licensed therapeutics for severe respiratory infections in hospitalised adults. The work will enable Australians to access cutting edge therapies and will increase Australia's role in clinical research trials with global impact.
- > Scientia Professor Anthony Kelleher was awarded \$5 million to lead a major consortium that will boost development of RNA vaccines and therapeutics for COVID-19 and other health threats in Australia.



Towards cervical cancer elimination in our region: HPV screen-and-treat

Cervical cancer, which is caused by certain strains of human papillomavirus (HPV), is a leading cause of death for women in the Western Pacific region. While Australia is on track to eliminate cervical cancer, thanks to successful national vaccination and screening programs, Papua New Guinea (PNG), our nearest neighbour, sees an estimated 1,200 deaths every year. In nearby Vanuatu, cervical cancer is the second most common cancer amongst women.

The Kirby Institute is the key in-country implementation partner within a major collaboration called the Eliminating Cervical Cancer in the Western Pacific (ECCWP) program*. ECCWP began in 2021, building on the work the Kirby Institute has undertaken with partners in our region since 2014 to develop and implement same-day HPV 'screen and treat' programs in countries throughout the Western Pacific. These programs provide HPV screening for women, with results being delivered within the hour, so that treatment can commence in the same visit if required.

"2023 has been a huge year for the ECCWP program. In Vanuatu, they are leading the region, with development of a national cervical cancer elimination strategy. In the Western Highlands Province of PNG, we have been working with our partners to significantly scale up screening outreach," says the Kirby Institute's Professor Andrew Vallely. "This has led to an acceleration in the number of women screened and treated, with equity of access even for women living in the most remote locations."

BELOW: Program partners at the launch of ECCWP in Vanuatu.

To ensure the highest impact implementation, Prof Vallely, along with Vanessa Price, Rachael Smith and Michaela Riddell from the Kirby Institute have developed standard operating procedures for health workers, facilitated innovative training programs for health service staff, and implemented robust monitoring and evaluation frameworks to generate policy-relevant evidence for continued scale-up and long-term sustainability of the program.

With the program now operating at scale in these localities, it is reaching women most at risk and vulnerable. Prof Vallely says that this incredible progress towards equitable access to cervical cancer screening and treatment would not be possible without the leadership of the health workers, academic partners, and health agencies in PNG and Vanuatu.

"We are thrilled to support the tremendous vision of our Vanuatu and Papua New Guinean colleagues, and their communities, in prioritising this important women's health challenge. No woman should die of cervical cancer, and projects like this one are having a real impact in reducing deaths and improving quality of life in our region."

* Eliminating Cervical Cancer in the Western Pacific (ECCWP) is a partnership between the Western Highlands Provincial Health Authority and Vanuatu Ministry of Health in collaboration with C4 partners: the Daffodil Centre (a joint venture between Cancer Council NSW and The University of Sydney), the Kirby Institute UNSW Sydney, the Australian Centre for Cervical Cancer Prevention, and Family Planning NSW.



ABOVE: Midwife Elvie provides education to a woman on self-collection for screening

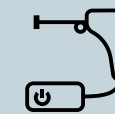
Also in 2023:

- > A new project led by Professor Claire Vajdic and funded by the Australian Government Medical Research Future Fund will develop a digital health tool to aid the equitable elimination of cervical cancer in Australia. The project will bring together national health and social data to rapidly identify gaps and overlooked areas that require more attention to achieve elimination in Australia and will focus on priority population groups experiencing barriers to prevention services.
- > Dr Dorothy Machalek has been leading research investigating whether just one dose of the HPV vaccine, can reduce the prevalence of cervical cancer-causing HPV types in the community. Working with Scientia Professor John Kaldor alongside colleagues in South Africa, the research demonstrated that a single dose is effective at preventing HPV infections in young adolescent girls, regardless of their HIV status. The research has opened the door for expanded access, particularly in low- and middle-income countries, where cervical cancer rates are disproportionately high especially among women living with HIV.

In the Western Highlands Province of PNG, between May 2022 and the end of 2023:



12,590
women screened



2,079
women treated for HPV with thermal ablation



310
women have been referred for gynaecological review and treatment

In Vanuatu, between October 2022 and the end of 2023:



6,688
women screened



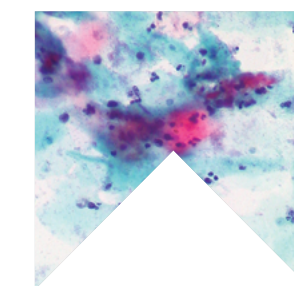
783
women treated for HPV with thermal ablation



150
were referred for gynaecological review and treatment

"HPV screening has a lot of positive impacts in terms of patient satisfaction, awareness, and their health seeking behaviours; knowing that they are free from the virus and at the same time preventing the financial, social, and psychosocial burden on their families, their community and Vanuatu as a whole."

Dr Margaret Tarere, Obstetrician Gynaecologist at Vila Central Hospital, Vanuatu



Partnership to end AIDS in our region

Since the beginning of the global HIV epidemic, Australia has played an important role in the regional response in Asia and the Pacific. Development of mutually respectful partnerships within countries and across the region has enabled sharing of knowledge, best practices and research learnings whilst fostering in-country expertise to drive local, contextualised responses.

Outside of sub-Saharan Africa, our region – Asia and the Pacific – has the largest number of people living with HIV, and there are millions of people who are not receiving lifesaving antiretroviral treatment.

“Kirby Institute researchers are working with governments, research partners, community and healthcare workers in a number of countries across our region to improve HIV prevention and access to and uptake of HIV testing and treatment,” explains Kirby Institute Director and HIV immunologist, Scientia Professor Anthony Kelleher.

In July 2023, the International AIDS Society (IAS) Conference in Brisbane provided an important opportunity to showcase the diverse HIV epidemics in the Asia and Pacific regions. The Kirby Institute co-hosted a pre-conference satellite forum, with Health Equity Matters and ASHM, which attracted key stakeholders from our region to elevate regional voices and explore the opportunities and challenges in accelerating progress towards the UNAIDS goal of ending AIDS as a public health threat in our region by 2030.

The HIV epidemic across the Pacific region has unique challenges, due to the interconnectedness of the many island nations. Dr Dashika Balak from the Fiji Ministry of Health and Medical Services noted that until recently, the region's epidemic was concentrated in Papua New Guinea (PNG), but there are concerning increases in cases in Fiji, which has even wider implications: “If a country like Fiji has a high burden of HIV, this is ultimately going to affect other Pacific Island countries because of the connections that we have to other Pacific Island countries and territories.”

Prof Kelleher said that the gathering of eminent regional partners, including Australia's Ambassador for Global Health Dr Lucas de Toca PSM, and Lady Roslyn Morauta, Chair of the Global Fund, provided a much-needed opportunity for leaders in our region to gather and address the challenges their countries face in working towards ending AIDS.

The forum featured presentations from representatives across our region, followed by a panel discussion with (pictured below L-R): Raybert “Bet” Domingo, Head of Community Development and Communications, Love Yourself, Philippines; Lady Roslyn Morauta, Chair of the Global Fund; Annette Sohn, Vice President and Director, TREAT Asia; Hai Son Vo, Vietnam Authority of HIV/AIDS Control; and Dashika Balak, Senior Medical Officer, Fiji Ministry of Health and Medical Services.



“PNGIMR and the Kirby share such an important partnership. Together with ACTUP we are achieving some important milestones in accelerating the uptake of innovative practices in PNG and improving the lives of our people – adults and children – living with HIV.”

**Dr Janet Gare,
ACTUP-PNG co-lead.**

Fostering partnerships to bolster PNG's HIV response

Papua New Guinea (PNG) has the highest HIV burden in the Pacific, with high rates of mother to child transmission and evidence of HIV drug resistance. In partnership with the Papua New Guinea Institute for Medical Research (PNGIMR), Kirby Institute researchers are working to boost the country's HIV public health and laboratory capacity through knowledge exchange, training, and innovation.

“Since 2020, ACTUP-PNG – a partnership between our PNG collaborators, the Kirby Institute and St Vincent's Hospital, Sydney – has been delivering tangible improvements to PNG's HIV response to monitor and address HIV. We have established point-of-care HIV viral load and infant diagnostic testing as well as routine HIV drug resistance surveillance, including highly specialised laboratory training in drug resistance testing,” says the Kirby Institute's Scientia Associate Professor Angela Kelly-Hanku, who is leading the project. “This work is being guided by the Government of PNG and local partners who know their needs and communities best, and we look forward to continuing and expanding this important work in the coming years.”

BELOW: Janet Gare, Opina Ragagalo, Angela Kelly-Hanku



Also in 2023:



> Two newer simplified HIV treatment options are at least as effective as current treatment approaches, according to the results of the world-first Kirby Institute-led global clinical trial called D₂EFT. The finding provides treatment options for the more than 3 million people living with HIV around the world for whom the standard first-line HIV treatment does not work.



> New Kirby Institute research combined a study in monkeys with mathematical modelling, revealing that the body's immune defences can inhibit viral rebound from elements of the HIV latent reservoir; information which could provide a possible avenue for long-term HIV control.

> In a postcode analysis of HIV data, researchers at the Kirby Institute reported that Inner Sydney has reduced new HIV acquisitions by 88 per cent since 2010, meaning it may be the first locality in the world to reach the UN target to end AIDS as a public health threat by 2030.

> Results of TAIPAN, a ten-year study into the impact of HIV 'treatment as prevention', published in *Lancet HIV*, found that a 27 per cent increase in people accessing effective HIV treatment saw HIV infections decrease by 66 per cent between 2010 to 2019, in NSW and Victoria.

Innovation to reduce infectious disease threats in remote Aboriginal communities

There are unique challenges for managing health threats in First Nations communities, especially those in remote parts of Australia.

Many remote First Nations communities are located hundreds of kilometres away from laboratory testing facilities, and in situations where housing can be crowded, and people are experiencing chronic health conditions, an infectious disease outbreak can have severe health implications; both for individuals and entire communities.

But since 2013, the Kirby Institute has been working with Flinders University International Centre for Point-of-Care Testing, in close partnership with Aboriginal Community Controlled Health Organisations (ACCHOs), government health departments, laboratories, industry and other stakeholders to boost access to innovative 'point-of-care' testing, which can be lifesaving.

"Point-of-care testing essentially brings the laboratory to the community," explains the Kirby Institute's

Professor Rebecca Guy. "The tests are highly accurate, the technology is user-friendly for clinicians, and results are delivered within one to two hours, meaning that the patient can commence treatment within the same clinic visit, and isolate if needed. Importantly, this new model of care has been shown to be not only highly effective, but culturally acceptable to health providers and communities."

Preventing a major COVID-19 outbreak

When the COVID-19 pandemic hit in 2020, it posed a serious risk to First Nations people in remote communities; with no vaccine or antiviral treatments available, a first case could have led to a community-wide outbreak.

"Time is of the essence when controlling infectious diseases, but test results were taking up to six days to be returned to these isolated communities," says Prof Guy.

In April 2020 the Australian Government contracted the Kirby Institute to expand the existing point-of-care testing network to test for COVID-19, which grew from 31 remote clinics in March 2020, to 86 in September 2020 and 105 by mid-2022. "With leadership from community and ACCHOs, and support from the government, stakeholders and industry, we were able to rapidly expand and deliver point-of-care testing to where it was needed," says Prof Guy.

The program had a direct and significant impact on averting a major COVID-19 outbreak in remote communities, as well as a huge overall health cost saving, according to an evaluation commissioned by the Australian Government.

"The program is the largest in the world to utilise innovative molecular point-of-care testing technology to enable rapid testing and diagnosis of COVID-19," said Prof Guy. "We're incredibly proud of this project and of the role it played, as highlighted in the evaluation. It was only possible with a lot of hard work, and strong community leadership and relationships."



Aboriginal and Torres Strait Islander health at the Kirby Institute

The Kirby Institute's approach to Aboriginal and Torres Strait Islander health research is driven by principles of Aboriginal leadership and self-determination for the development and delivery of health solutions for Aboriginal and Torres Strait Islander communities.

The Kirby Institute has been proactive in expanding our Aboriginal and Torres Strait Islander Health Research Program and growing our First Nations workforce which now includes ten First Nations-identifying staff. We are continuing to grow the program and provide pathways for First Nations research capacity and leadership into 2024.

By the end of 2023, the Kirby Institute had hosted eight Cultural Awareness and two Ethical Research Training sessions (since 2021) for more than 160 staff, facilitated by Big River Connections' Felicity Ryan, and Robert Monaghan, Manager of Aboriginal and Torres Strait Islander Health Research at the Kirby Institute. These training sessions will continue in 2024.

Partnership and community leadership key to success

According to the evaluation, 'a major strength of the Program, was the creation of, and enabling, a trusting environment where lessons were shared, and practices continually improved.' This was enhanced through the establishment by the National Aboriginal Community Controlled Health Organisation (NACCHO) and Australian Government of the Aboriginal and Torres Strait Islander Advisory Group on COVID-19*, co-chaired by NACCHO Deputy CEO Dr Dawn Casey and comprised of representatives from the Aboriginal community-controlled health sector, Aboriginal health service providers, clinicians and peak bodies, as well as state and federal health sector representatives.

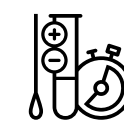
The rapid identification of COVID-19 cases in communities triggered a range of local clinical and public health responses, often on the same day, which were critical to controlling the virus. Dr Casey says that Aboriginal and Torres Strait Islander leadership in the design and implementation of such health interventions is essential to their success. "First Nations people know what is best and what will work for our communities, and this may look different across the many communities in this country, which is why local knowledge is so critical."

* On 17 October 2022, the Advisory Group became the National Aboriginal and Torres Strait Islander Health Protection sub-committee of the Australian Health Protection Principal Committee.

By 31 August 2022



908 Aboriginal Health Workers/practitioners, nurses, and doctors were trained to conduct point-of-care testing



72,624 tests were conducted across remote First Nations communities



Resulting in **4,391** COVID-19 positive results

According to the evaluation, **these swift actions averted between an estimated 23,000 and 122,000 infections** that would be likely to have arisen in the 40 days after the first infection was identified in a remote First Nations community and has **avoided between \$337 million and \$1.8 billion in health costs.**

LEFT: Point-of care testing at Kempsey District Hospital. CREDIT: Thunderbox Films.



Collaborating to strengthen laboratories in the Indo-Pacific

Timely, accurate testing for infectious diseases can improve health, save lives, and stop pandemics in their tracks. The invisible hero of a testing system is the laboratory, where tiny specimens of blood or saliva are passed through equipment as trained experts search for infectious intruders. The quicker specimen tests can be processed, the more rapidly results can be sent back to individuals, who can in turn initiate treatment, and take action to prevent onward spread.

Strong laboratory systems are also crucial to allow countries to monitor and track the trajectory of epidemics, which is critical to help governments plan and respond to disease trends and emerging threats.

In many low- and middle-income countries, laboratory capacity is limited. A lack of access to COVID-19, HIV, tuberculosis and malaria testing, limited integration of testing services, and prohibitive costs all contribute to many thousands of cases going undiagnosed.

In 2023, the Kirby Institute continued its work to strengthen laboratory and diagnostic capacity in the Indo-Pacific. This work, funded by the Australian Government Department of Foreign Affairs and Trade, is taking place in Cambodia, Lao PDR and Papua New Guinea. Like most of the Kirby Institute's global health work, it is a massive collaborative effort, bringing

together Australian and global partners including the Doherty Institute, the Burnet Institute, the Clinton Health Access Initiative, the Foundation for Innovative New Diagnostics (FIND), national Departments of Health and local research and health system leaders.

"We bring our long-term networks and expertise together to build and strengthen diverse technical partnerships between Australian research centres, global health organisations and regional partners," says Scientia Professor John Kaldor, head of the Global Health Program at the Kirby Institute.

"Together, we harness innovations in health technology and are able to catalyse locally-led initiatives that respond to local needs."

The COVID-19 pandemic put significant strain on laboratories in our region that were already working beyond capacity managing multiple endemic diseases like HIV, tuberculosis and malaria. At the same time, the pandemic presented opportunities to focus on supporting laboratories and creating better systems. "By taking a systems-wide approach, countries will be better equipped to withstand shocks that threaten diagnostic capacity, whether due to pandemics or other changes in the local and global environment," says Prof Kaldor.



Collaborators from across the program convened in Phnom Penh, Cambodia in October for a tri-country forum to share their successes and lessons. Attendees noted that through meeting with peers from other countries and working with the Australian and global partner organisations, they were able to identify common challenges, share ideas, and further inform their work to implement new approaches.

Arika Garg, Program Executive Steering Committee member and Associate Director, Global Diagnostics Team at the Clinton Health Access Initiative, says, "Through our work with the Kirby Institute and the other members of the IndoPacLab consortium, we have been able to support partner countries to take a more integrated approach to infectious disease diagnostics. Integration across multiple diseases allows processes such as training, quality assurance, inventory management and software implementation to be applied more consistently and efficiently, and ultimately better addresses the health needs of the population being served".

ABOVE: GeneXpert testing in progress, PNG
 BELOW: Opening of the IndoPacLab Tri Country Forum, full Delegation, Phnom Penh, Cambodia, October 2023
 PAGE 28: Basic Management Unit for TB at Bogia District Hospital, Madang Province. Photographer: Michaela Riddell



Training

More than 300 people trained across three countries in laboratory quality and administrative management, preventative maintenance and technical skills.



Software

Introduced software for inventory management and capturing testing data and results (Lao PDR and PNG).



Analysis

Collected data and completed modelling in all three countries, identifying significant opportunities to increase speed and reduce cost of transportation and testing of specimens – in some cases by up to 43% (Cambodia).



Pilots

Trialled new testing pathways in Cambodia for the prevention of mother to child transmission of HIV. This pilot has significantly reduced wait times for testing pregnant women and babies, improved adherence to testing algorithms, and has improved viral load testing among pregnant and breast-feeding women.

Also in 2023:

- > The Global Health Program undertook new integrated surveys of neglected tropical diseases and vaccine preventable diseases in Solomon Islands and Vanuatu, and responded to country requests for expert technical advice on scabies control in New Caledonia and Tonga.
- > A Kirby Institute study published in *Lancet Global Health* found that administering drugs to control the neglected tropical disease lymphatic filariasis also led to improved control of intestinal worm infections, scabies and impetigo.
- > A Kirby Institute study in Vietnam found that whole population treatment for intestinal worms was more effective than the traditional approach of targeting only school age children.
- > In partnership with colleagues in Indonesia, the Kirby Institute helped to forge strategic relationships with universities in the Asia-Pacific region by establishing a new Memorandum of Understanding for mutually beneficial research with the University of Sebelas Maret (UNS).



Tracking sexually transmissible infections in Australia to inform national strategies

The Kirby Institute has conducted national surveillance for HIV, viral hepatitis, and sexually transmissible infections (STIs) and compiled the findings in an annual report for over 30 years. This work is done on behalf of the Australian Government in close collaboration with community organisations and state health departments who work in partnership to collect, analyse and communicate vital information about the spread of these infections across the country.

"We can't address a health challenge that we don't understand. That is why, when it comes to public health, surveillance is critical to inform strategies to improve community health," says Dr Skye McGregor, head of the Surveillance Innovation Group at the Kirby Institute.

"We have a major challenge in Australia with ongoing increases in STIs across multiple populations which, if left unaddressed, have the potential to have long term impacts on reproductive health. Data like these highlight the need for a multi-faceted approach to sexual health that focuses on systems changes to overcome persistent inequities in access to healthcare," says Dr McGregor.

BELOW: Dr Skye McGregor addressing a press conference at the IAS Conference on HIV Science.



The report also revealed that Australia has made significant progress in the elimination of genital warts due to the impact of the human papillomavirus (HPV) vaccination program. The proportion of non-Indigenous females aged under 21 years attending sexual health clinics diagnosed with genital warts, which are caused by HPV, has decreased from 10.6 per cent in 2007 to 0.2 per cent in 2022.

"These reductions are extremely encouraging and show us what is possible. It's now time to ensure attention and targeted resources are used to address other STIs," says Dr McGregor.

Australia's Minister for Health and Aged Care, The Hon. Mark Butler, said that the Kirby Institute's decades of successful community partnerships around surveillance and high-quality reports have provided a strong foundation for the development of the national strategies for bloodborne viruses and STIs.

"The Kirby Institute's leadership in surveillance is built upon a foundation of strong community connections and is a key strength in Australia's response to these infections," he said.

The latest Kirby Institute surveillance report on sexually transmissible infections found that:



Over the past 10 years, Australian diagnoses of gonorrhoea have doubled, while diagnoses of syphilis have tripled.



Chlamydia was the most frequently notified STI in Australia in 2022, with more than two in three diagnoses occurring in young people aged 15 to 29 years.



Aboriginal and Torres Strait Islander peoples continue to experience significantly higher rates of STIs than non-Indigenous Australians.



In 2022 there were 93,777 diagnoses of chlamydia, 32,877 diagnoses of gonorrhoea and 6,036 diagnoses of infectious syphilis.



There were 15 congenital syphilis cases in 2022, eight of which were among Aboriginal and Torres Strait Islander peoples. There have been 69 cases of congenital syphilis in the past seven years, 18 of which resulted in the death of the infant.

Also in 2023:

- > Sexual health leader Basil Donovan AO was made a UNSW Emeritus Professor. The appointment was made as Emeritus Professor Donovan approached his retirement, after a 44-year career improving sexual health both as a clinician and a prolific researcher.
- > An evaluation of the Kirby Institute-coordinated First Nations STI Molecular point-of-care testing program (TTANGO2/3) was presented at the STI & HIV 2023 World Congress. The evaluation demonstrated that this community-led, primary health care-integrated testing approach for chlamydia, gonorrhoea and trichomoniasis in regional and remote communities has been sustainably scaled up and was clinically effective while maintaining high analytical quality. The program has had a substantial public health impact through reductions in community transmissions.
- > The Kirby Institute-led Hub for research on antimicrobial resistance (AMR) held its first annual symposium in 2023. Attended by more than 60 AMR Hub researchers, the symposium brought together a wide network of collaborators to discuss complex challenges, including tackling the development of "next generation" diagnostic assays for STI superbugs.
- > The Australian Study of Health and Relationships, led by the Kirby Institute, is a major nationally representative survey of sexual health and behaviour. In 2023 the survey collected data from over 14,000 Australians, and the findings will be made available in 2024.

LEFT: Emeritus Professor Basil Donovan.



Events at the Kirby: Fostering collaboration through connection

2023 Seminar Series: Showcasing research

The Kirby Institute Seminar Series continued to be an engaging weekly forum for sharing infectious disease research and encouraging collaboration between Kirby Institute researchers as well as both Australian and international colleagues.

In 2023, the Kirby Institute hosted 32 research seminars, including ones commemorating important awareness days such as International Women's Day, NAIDOC Week and World AIDS Day. Alongside in-person attendance our online recordings of the 2023 Seminar Series have amassed 5,000 views.

The talks featured speakers from a range of sectors, ensuring the 2023 Seminar Series represented a broad scope of infectious diseases and methodologies, and facilitated cross-disciplinary ideas sharing and networking opportunities.

Dr Evan Cunningham, Co-Chair of the Seminar Series Committee says, "the weekly seminars continue to make a significant impact by providing a platform for sharing breakthroughs and fostering collaboration across diverse fields of research, with presentations from experts, early- and mid-career researchers, and Kirby Institute PhD students."



Michael Kirby on the role of human rights in responding to infectious diseases

In June 2023, Kirby Institute Patron, The Hon Michael Kirby AC CMG, delivered the David Cooper Lecture, sharing his insights into life during the AIDS epidemic, highlights of his career, and the role of human rights in responding to infectious disease threats, including the dual pandemics of HIV/AIDS and COVID-19.

The sold-out event in UNSW's Leighton Hall featured an introduction from UNSW Chancellor David Gonski, followed by the David Cooper Lecture with Michael Kirby in conversation with ABC journalist Geraldine Doogue.

Michael Kirby shared reflections on his personal life and how the HIV/AIDS epidemic impacted him, as both a gay man and a judicial leader. He also spoke about how the crisis informed and cemented his guiding principles in working with at-risk communities.

BELOW LEFT: Adjunct Professor Bill Bowtell AO, Dorrie Cooper, and Lucienne Bamford at the David Cooper Lecture.

BELOW: Michael Kirby delivering the David Cooper Lecture at UNSW's Leighton Hall.

"Paradoxically, reaching out to those in need is to reach out to those most at risk; involve, inform and protect them until there is something – a vaccine or treatment – that could help. Doing this takes courage, support and evidence," he said.

Michael Kirby also reflected on the leadership of the Kirby Institute's inaugural director Scientia Professor David Cooper AC, with whom he had a long friendship and whose influence he attributes to piquing his interest in the fight against HIV. "When the Kirby Institute was launched David Cooper said our interests lie in helping marginalised communities with infections," he said.

"I'm very proud of [the Kirby Institute's global outreach]; it's a continuation of what we learnt from David Cooper."

The David Cooper Lecture honours the legacy of the Kirby Institute's inaugural director Scientia Professor David Cooper AC, who passed away in 2018. He was an internationally renowned scientist and HIV clinician.



Celebrating the career of Associate Professor Garrett Prestage

In reflection and celebration of his 32-year research career at the Kirby Institute, and over 40 years working in health and activism, Associate Professor Garrett Prestage delivered the 2023 Brett Tindall Memorial Lecture, an annual lecture held by the Kirby Institute since 2012 in honour of the late Dr Brett Tindall, one of the Kirby Institute's early researchers who made seminal HIV discoveries.

On the occasion of his retirement, colleagues, friends and family of A/Prof Prestage gathered in the Science Theatre at UNSW, where they heard some of the extraordinary career highlights of a community leader and champion for health.

Since 1976, and as a prominent 78er, A/Prof Prestage's work has had far-reaching impacts on the rights and health of gay and bisexual men. His early work as a youth worker employed by the City of Sydney gained media traction, calling for government support for vulnerable gay youth. His advocacy and community connections spearheaded the establishment of the organisation Twenty10, which still provides critical support to LGBTQIA+ youth today.

Since then, A/Prof Prestage was responsible for the development of highly effective health campaigns targeted at gay men during the HIV/AIDS crisis in Sydney and has led to a number of important community studies which have gone on to inform health policy, provide important information to the community, and facilitate links between community and research that have led to better health outcomes.





A/Prof Prestage's work has centred on behavioural research, with the needs and experiences of the gay community informing his approach. "When I speak of community, I don't mean just some collection of individuals who share a common characteristic or behaviour or circumstance. They also understand that they share a common bond, and are committed to supporting and enhancing each other's lives, even in the face of adversity," he said.





TOP: Dr Ashley Quigley, Scientia Professor Anthony Kelleher, Vicky Sawatt, Dr Hannah Law.
 BOTTOM: New Drs Mohana Kunasekaran, Rabiah Al Adawiyah, Ye Zhang, Yanran Zhao, Hossain Sazzad, Christina Fichter.

Also in 2023:

	76 postgraduate students enrolled		25 international students
	16 different countries		16 PhD completions

Excellence in higher degree research

Our researchers and staff are world leaders in their fields and possess a range of knowledge, skills and experience. Alongside providing solutions to current health challenges, we are committed to training the next generation of researchers to respond to the challenges of the future.

The Kirby Institute offers two postgraduate research degrees: the Doctor of Philosophy (PhD) and the Master of Science by Research (MRes). In 2023, the Kirby Institute had 76 postgraduate students enrolled including 25 international students from 16 different countries, and celebrated 16 PhD completions.

Two of our 2023 graduates received Dean's Awards for Outstanding PhD Theses: Christina Fichter from the Immunovirology and Pathogenesis Program for her thesis 'Development of Novel Transient Delivery Systems for Gene Therapy', and Joanne Carson from the Viral Hepatitis Clinical Research Program for her thesis 'Barriers to hepatitis C virus elimination: treatment discontinuation, treatment failure, and reinfection'.

"It's a testament to the culture and excellence of our institute that we are able to celebrate so many graduations, year on year. I congratulate all of the 2023 PhD graduates on their significant accomplishment, and on their contributions to our institute and its impact on health," said Scientia Professor Anthony Kelleher, Kirby Institute Director. "They should all be exceptionally proud."

ABOVE: Scientia Professor Gregory Dore and Joanne Carson.

Kirby Institute Postgraduate Student Prize 2023

Joanne Carson was awarded the Kirby Institute's Postgraduate Student Prize for her paper titled 'National trends in retreatment of HCV due to reinfection or treatment failure in Australia', which was published in the *Journal of Hepatology* in 2022. The Kirby Institute Postgraduate Student Prize is an annual award given to the most significant first author paper by a Kirby Institute student, published the previous calendar year in a peer-reviewed journal in infectious diseases.

The paper examines the potential impact of treatment discontinuation, treatment failure, reinfection, and retreatment on hepatitis C elimination efforts in Australia using a range of data sources from prospective cohort studies to big data alongside a range of statistical methodologies, including machine learning.

Ms Carson is a Research Assistant with the Kirby Institute's Viral Hepatitis Clinical Research Program. Her research applies novel methodologies to analyse health data and develop surveillance systems, with a specific focus on infectious diseases, illnesses, and protracted post-infectious manifestations.

She presented her paper at the Kirby Institute Seminar Series where her supervisor and Head of the Viral Hepatitis Clinical Research Program, Scientia Professor Gregory Dore, presented the award and commended Ms Carson's excellent work.

"Joanne has brought an incredible level of critical thinking and enthusiasm to her work, and I've learnt a lot from her. I think that's a great testament to her intellect and enthusiasm," says Prof Dore.

Championing a vision of equity: The David Cooper Scholarship

Damian Honeyman, an intensive care unit nurse at NSW Health and PhD student with the Biosecurity Program at the Kirby Institute, was awarded the second David Cooper Scholarship. Thanks to generous donations made in memory of the Kirby Institute's inaugural director, the late Scientia Professor David Cooper AC, this 4-year PhD scholarship has been established to carry forward David's passion for knowledge exchange to train the next generation of researchers and clinicians.

Mr Honeyman's PhD research will investigate how early warning systems driven by artificial intelligence can prevent high-risk biothreats, including chemical, biological, radiological, nuclear, and explosive events (CBRNE), from developing into serious epidemics. This research will aim to address the gap in early warning systems and threat detection of CBRNE events for Australia low-and-middle-income-countries. Mr Honeyman's research aims to meet the growing concern of biothreats, which can pose a risk to national security and public health.

Celebrating success

The Kirby Institute is proud to celebrate the achievements and successes of our outstanding staff. Here are some of the highlights from 2023.

Awards & accolades

- > Professor Gail Matthews was elected as a Fellow of the **Australian Academy of Health and Medical Sciences (AAHMS)** for her work on therapeutic interventions for HIV, viral hepatitis, and COVID-19.
- > Associate Professor Rowena Bull was accepted into the **Australian Academy of Health and Medical Science (AAHMS)**'s mentorship program, which nurtures future leaders by facilitating access to training, support and networking opportunities through the AAHMS.
- > Professor Miles Davenport, Associate Professor Deborah Cromer and Dr David Khoury and collaborators at the Doherty Institute were finalists for the **2023 Australian Infectious Diseases Research Centre Eureka Prize for Infectious Diseases Research**, for their research on COVID-19 immunity.
- > Dr Lucia Romani was awarded a **L'Oréal-UNESCO** scholarship for her work to investigate STIs and perinatal health outcomes in Fiji.



- > Dr Lise Lafferty was honoured with a 2023 Paul Bourke Award in recognition of her "significant contributions to the field of infectious diseases, with a particular focus on hepatitis C in the challenging context of prison settings".
- > An impressive five Kirby Institute researchers were recognised at the **2023 UNSW Medicine and Health Staff Awards**:
 - **Professor Jason Grebely** was awarded the High Impact Partnership Award for his highly collaborative and impactful research on hepatitis C including clinical trials, novel approaches to point-of-care testing, advocacy, and capacity building initiatives.
 - **Professor Andrew Lloyd** was awarded the Higher Degree Research Supervision Award, a testament to him as a supportive mentor and supervisor who fosters important opportunities for those under his supervision pursuing a research career.
 - **Robert Monaghan** was awarded the Values in Action: Respect Award, which honours his collaborative, respectful, thoughtful and collegial approach and leadership in building the Kirby Institute's cultural competency through delivering cultural awareness training, as well as facilitating the expansion of the Kirby Institute's First Nations-led portfolio of research.
 - **Dr Lucia Romani** was awarded the Global Health Impact Award for her global leadership in implementation research focused on control of scabies, a neglected tropical disease, and related impetigo and its complications in the Pacific.
 - **Dr Chaturaka Rodrigo** was awarded the Research Collaboration Award for his impactful, cross-disciplinary and globally collaborative research on dengue fever.
- > The **Kirby Institute Emerging Investigator Awards** are an opportunity for early- and mid-career Kirby Institute researchers to progress their research. The 2023 recipients were Drs Arun Abayasingam, Josh Hanson, Benjamin Hegarty, Rehana Hewavisenti, Sujith Kumar, Amy Kwon, and Heather Valerio.

ABOVE: Eureka Prize finalists Professor Miles Davenport, Associate Professor Deborah Cromer, and Dr David Khoury. LEFT: Robert Monaghan, Dr Lucia Romani, and Professor Jason Grebely



Academic promotions

Scientia Professor: Anthony Kelleher, Andrew Grulich

Professor: Kathy Petoumenos

Associate Professor: Deborah Cromer

Senior Lecturer: Caroline Watts, Awachana Jiamsakul, Mee Ling Munier, Chansavath Phetsouphanh, David Khoury

Lecturer: Luh Putu Lila Wulandari



2023 highlights from across the Kirby:



The Kirby Institute launched a new website to provide a fresh, simplified, easy-to-use experience for our audiences. The digital transformation will ultimately deliver an improved and optimised web experience and help promote our work in creating a world that is free of infectious disease.



The Cooper HIV/AIDS Research Training (CHART) Program, an education and training initiative that aims to expand the number of skilled and experienced HIV researchers in the Asia-Pacific region, welcomed nine new participants from Papua New Guinea, Philippines, Fiji, Thailand and Indonesia.



The Kirby Institute and the National Centre for Infectious Diseases (NCID) Singapore signed a landmark Memorandum of Understanding that formalises the collaborative synergies and opportunities between the two organisations.



We launched a short video across our socials to give our audiences a behind-the-scenes look at one of our innovative projects, the 'Sexual Health Enhanced Walkabout' pilot, a partnership between the Kirby Institute, Walkabout Barber, and Durex that aims to improve engagement and awareness of sexual health among young Aboriginal men. Watch it on YouTube: <https://tinyurl.com/KirbyWalkabout>.



Ahead of the International AIDS Society Conference on HIV Science in Brisbane, the Kirby Institute hosted a daylong symposium, featuring international and Australian leaders in basic science and public health HIV research.

LEFT ABOVE: CHART Program participants attending a workshop at the Kirby Institute. LEFT BELOW: Robert Monaghan and Walkabout Barber Brian Dowd with the Walkabout Barber bus.

Significant publications

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ACT-UP PNG team at the Kirby Institute. BACK ROW: Melissa Schulz, Gillian Scott, Jacinta Welch, Sujith Kumar FRONT ROW: Helen Keno, Janet Gare, Ruthy Boli

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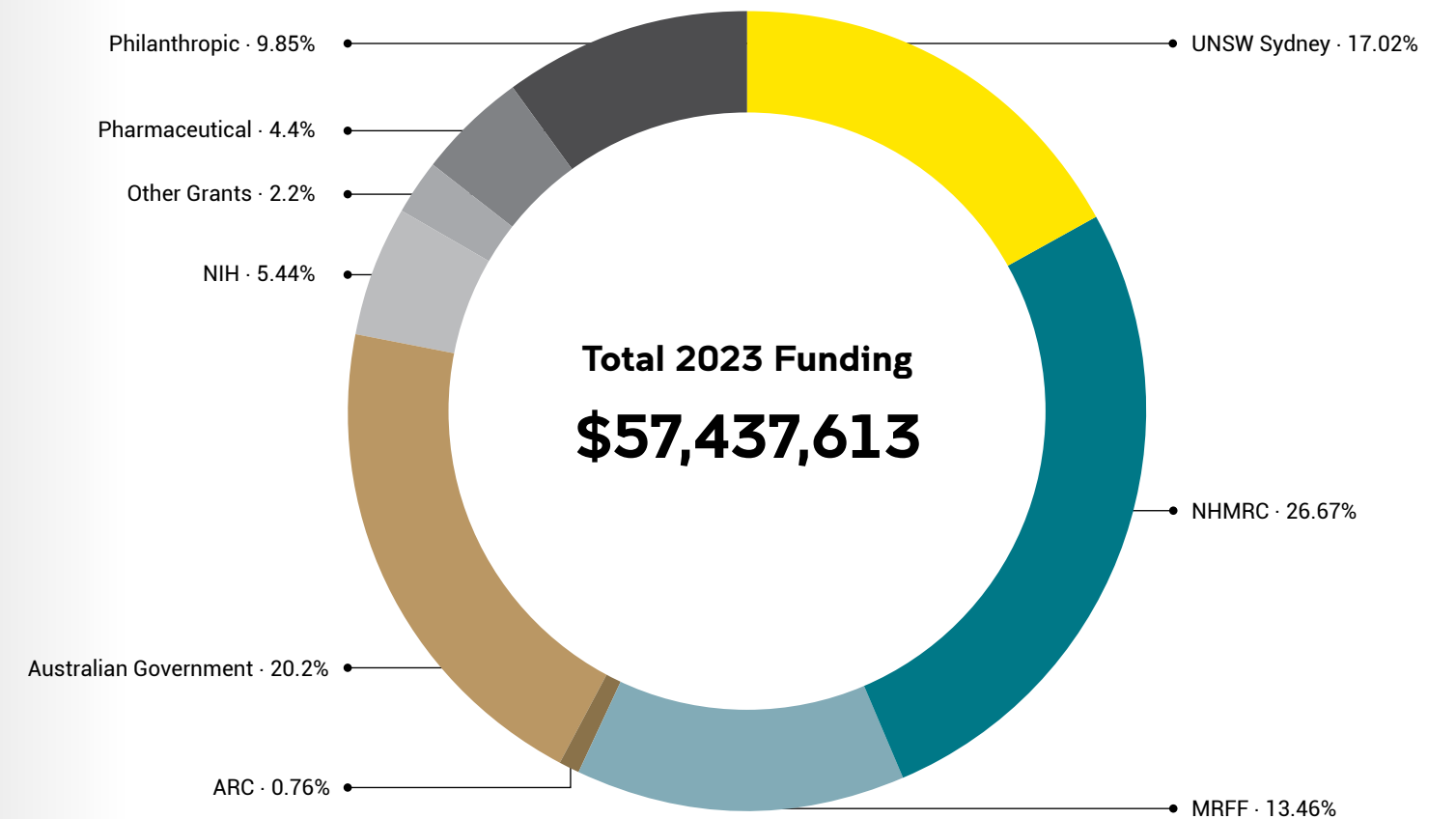
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In 2023, there were **678** peer-reviewed publications by Kirby Institute researchers.

Funding

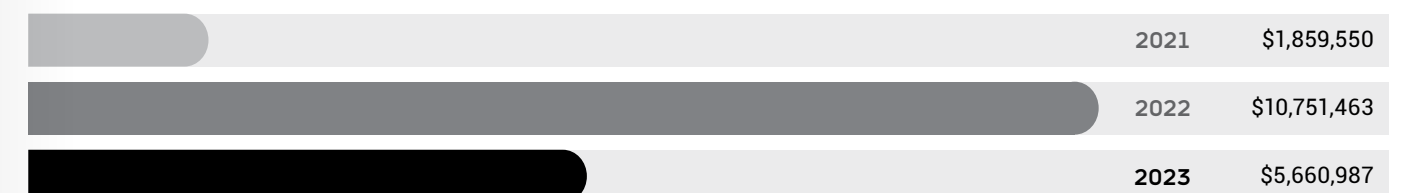
	AU\$
UNSW Sydney	9,775,821
National Health and Medical Research Council (NHMRC)	
Centres of Research Excellence	1,216,482
Clinical Trials and Cohort Studies	898,504
Fellowships	558,480
Global Alliance for Chronic Diseases	500,140
Ideas Grants	705,769
Investigator Grants	5,457,634
Partnership Grants	2,564,571
Postgraduate Scholarships	40,747
Program Grants	2,456,575
Project Grants	461,595
Synergy Grants	74,000
Targeted Call for Research	5,000
Participation in Cancer Screening Programs	371,679
	15,315,176
Medical Research Future Fund (MRFF)	
Clinical Trials Activity	593,806
COVID-19 Health Impacts and Vaccination Schedules	686,849
COVID-19 Treatment Access and Public Health Activities	737,158
Genomics Health Futures Mission	465,392
Improving Diagnosis in Cancers with Low Survival Rates	121,172
International Clinical Trial Collaborations	851,670
Optimising the Clinical Use of Immunoglobulins	403,974
Rapid Applied Research Translation Initiative	3,537,662
Primary Health Care Digital Innovations	335,476
	7,733,159
Australian Research Council (ARC)	
Discovery Projects	20,600
Industrial Transformation Research Hubs	416,863
	437,463
Australian Government	
Federal Department of Health	8,360,097
NSW Ministry of Health	2,081,735
Department of Foreign Affairs and Trade	1,023,053
Other Government Departments	135,747
	11,600,632
National Institutes of Health (NIH), USA	3,123,935
Other Grants and Contracts	
Australian	488,268
International	773,303
	1,261,571
Pharmaceutical Industry	2,528,869
Philanthropic Funding	5,660,987
TOTAL	57,437,613



External Grant Funding



Total Donations





LEFT TO RIGHT: David Gonski (Chancellor, UNSW Sydney), Michael Kirby (Patron of the Kirby Institute), Chuck Feeney, Fred Hilmer (Former Vice Chancellor, UNSW Sydney), Charles Curran (Chair, St Vincent's Curran Foundation) at the Kirby Institute's 25th anniversary celebrations in 2011.

Paying tribute to a global philanthropist

In 2023, the Kirby Institute celebrated the life and generosity of American businessman and philanthropist Charles Francis "Chuck" Feeney who devoted his entire personal fortune to global philanthropy during his lifetime.

"Chuck Feeney was an incredibly generous man. It is not an overstatement to say that without his contributions, the Kirby Institute would not be where it is today. The world has lost an immense presence, and we send condolences to his friends and family. There is no doubt that his legacy will live on through the multitude of endeavours he supported," said Scientia Professor Anthony Kelleher, Director of the Kirby Institute.

In 2011, at the Kirby Institute's 25th anniversary, Chuck Feeney pledged \$10 million through Atlantic Philanthropies to the Kirby Institute to support the Institute's move from Darlinghurst to a new, purpose-built facility on UNSW's Kensington campus. The move to the Kensington campus, with its state-of-the-art facilities, was crucial in the evolution of the Institute.

"The Atlantic Philanthropies commitment led to a matching \$10 million from private philanthropy in Australia, meaning the pledge effectively provided the impetus to raise a total of \$20 million in philanthropic funding for the Kirby Institute. This is an outstanding contribution, for which we will be eternally grateful," said Prof Kelleher.

"Today, we are a globally renowned infectious disease research centre, thanks in a large part to the generosity of Mr Chuck Feeney."



ABOVE: The Biosecurity Research Program, led by Professor Raina MacIntyre, in the EPIWATCH Decision Theatre.

You can make a difference

Thank you to our wonderful community of supporters for your generous philanthropic support throughout the year. It is with your ongoing commitment that we are able to continue to work with communities in Australia and around the world to understand, develop, implement and evaluate health solutions, ultimately building a healthier, safer world for everyone.

Your support will ensure that the Kirby Institute can continue to carry out innovative research, working towards our vision of a world free of infectious diseases.

To find out more and make a donation, visit kirby.unsw.edu.au/donate or call +61 2 9385 0900

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