

COMBATTING COVID-19

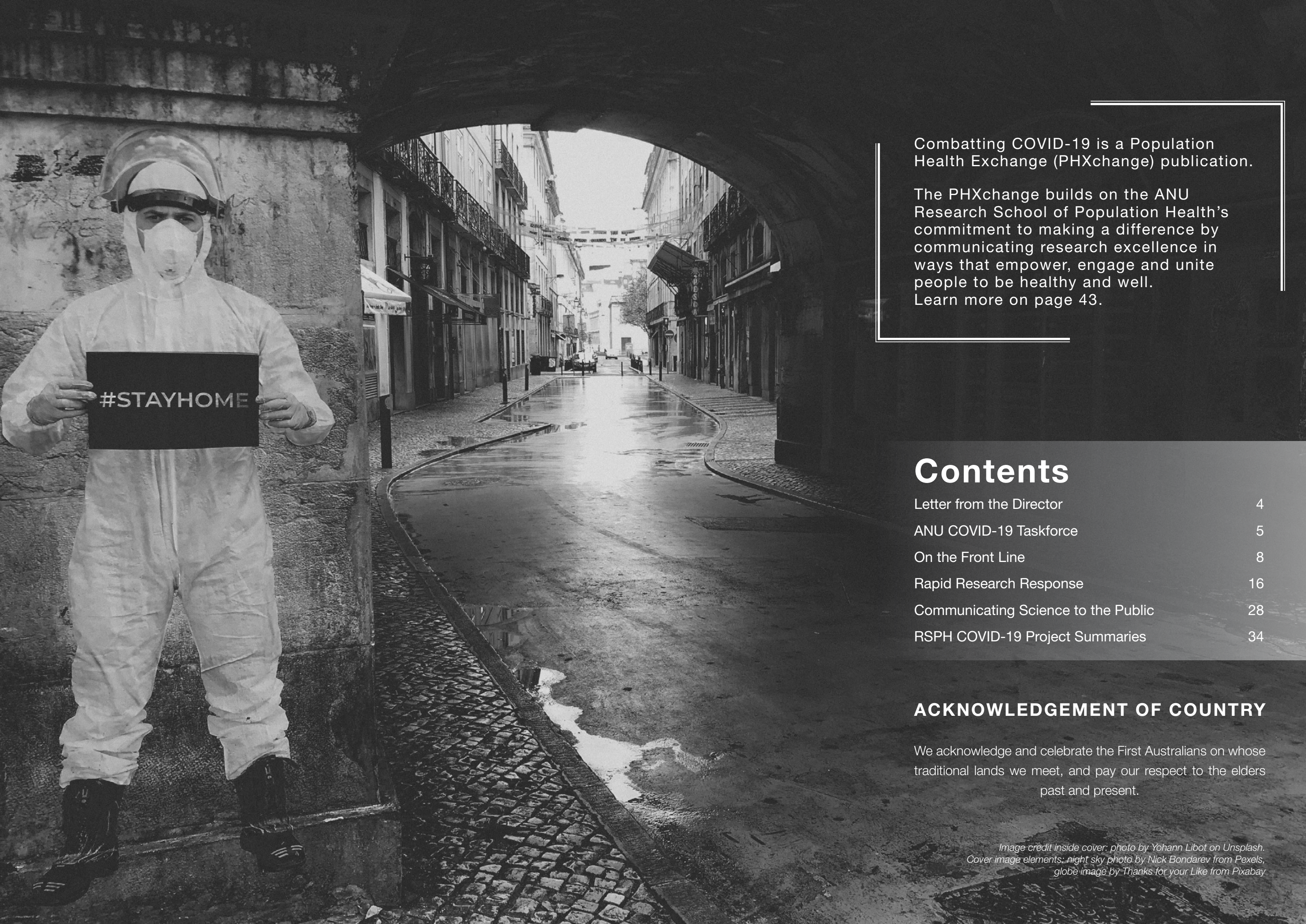
A PHXchange
Publication
August 2020



Research School of
Population Health
ANU College of
Health & Medicine



Australian
National
University



Combatting COVID-19 is a Population Health Exchange (PHXchange) publication.

The PHXchange builds on the ANU Research School of Population Health’s commitment to making a difference by communicating research excellence in ways that empower, engage and unite people to be healthy and well. Learn more on page 43.

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ACKNOWLEDGEMENT OF COUNTRY

We acknowledge and celebrate the First Australians on whose traditional lands we meet, and pay our respect to the elders past and present.

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Letter from the Director



This year has presented more challenges than I would have imagined possible – from bushfires to hail, and now a global pandemic which is still unravelling. Yes, it is an unprecedented year, but I can say with pride that so too is the response from our School.

It was clear from the outset that our expertise in both field epidemiology and public health were needed to respond to the public health crisis of COVID-19. And we didn't stop with great science, or our world renown modelling, prevention and contact tracing. We used our expertise in collaboration and communication to bring our 'bread and butter' expertise to communities, policy makers, and service providers – the people who needed it.

Prior to the pandemic being officially declared by the World Health Organisation our experts accepted secondments with departments of health, local and Federal, while others took field postings across Australia and Southeast Asia.

They are all on the 'frontline' of the COVID-19 response. I'm not just referring to our seasoned academics here (and one in ten of our academic staff were posted elsewhere), but students, many of whom only commenced their studies at the beginning of the year, and early career researchers are also in roles critical to helping prepare and protect communities from COVID-19.

Our strength in research enabled us to discover some of the unknowns about COVID-19 itself and understand community perceptions and actions in the response to the pandemic. Both these types of expertise empower an effective response. Our researchers designed contact tracing training modules that has been shared around the world, implemented innovative and easy ways to detect COVID-19 in the community,

designed data visualisation tools to track disease spread, provided rapid reviews on the virus and preparedness, and established long-term health outcome studies spanning all aspects of health, to name a few. I am particularly proud of our collaborative partnerships – not only across ANU, but with government bodies, Indigenous and Torres Strait Islander groups, and private institutions. This weaving together of different knowledge, expertise and insights ensured that our science created real-world solutions.

At RSPH we pride ourselves on the wide lens in which we view health. While we have been addressing the physical health requirements of Australia's COVID-19 response, we are acutely aware of the emotional and mental health needs as well. Our researchers have stepped up to this challenge by engaging directly with the community

to help address this problem, as well as undertaking long-term mental health research.

Our response to this pandemic isn't just about science and policy, however. Our ability to communicate with the public is central. COVID-19 has been labelled a 'misinformation pandemic', and our researchers have worked

continuously with the media – radio, newspapers, television and social – to inform the public and promote public health messaging based on evidence. This report, a product of the Population Health Exchange, highlights our COVID-19 communication and engagement capability as well as our excellent science.

As this report shows, our strength is our people and our deep commitment to improving health for all. This publication demonstrates this dedication as we aid the global mission to combat COVID-19, as well as supporting our local communities.

Lyndall

Professor Lyndall Strazdins
Director, Research School of Population Health

ANU COVID-19 Taskforce



"It has been a pleasure to Chair this group of over 50 experts from multiple disciplines, predominantly across the School and College but also the University more broadly. The Taskforce is comprised of 10 portfolios and so it has been a challenge at times with so many balls in the air but rewarding at the same time as the ANU has gone on the offensive to respond to this global pandemic. There is still a lot of work to do and I am sure this Taskforce will continue to evolve and be proactive to minimize the impacts of COVID-19 on the health and wellbeing of ANU staff and students, our local community, Australians and our regional neighbours."

Darren

Professor Darren Gray
Chair, ANU COVID-19 Taskforce
Deputy Director, Research School of Population Health

Early in the pandemic, the ANU recognised the importance of our experts in the fight against COVID-19. In response Vice-Chancellor Professor Brian Schmidt and College of Health & Medicine Dean Professor Russell Gruen instigated the formation of an ANU COVID-19 Taskforce. Established on 5 March 2020, the Taskforce draws together considerable expertise, experience, resources and skills across the University. The Taskforce enables collaboration between different Schools and other organisations in addressing the impacts of COVID-19. The Taskforce is chaired by Professor Darren Gray, an infectious disease expert and the Deputy Director of RSPH, and the Head of their Department of Global Health.

Since its inception the Taskforce has been heavily involved in efforts addressing the impact and management of COVID-19. The initial focus was to address questions regarding containment of COVID-19 as put forward by Vice-Chancellor Brian Schmidt. As the demands of COVID-19 has progressed, however, the Taskforce focus has diversified and expanded in accordance with these needs. These include the provision of advice and support to government and non-government organisations within Australia and internationally (including secondments); contact tracing and the establishment and delivery of contact tracing workshops (this has subsequently been adopted globally); conducting ongoing rapid reviews and generating evidence-based materials; modelling future prospects; optimizing diagnostics and supporting testing, overseeing ANU research activities and communicating to the public to promote public understanding and social wellbeing; and more outlined in this report.

RSPH is a key figure in the Taskforce response, with numerous contributions made by both RSPH academics and students. In many cases RSPH scholars are not only contributing, but coordinating the COVID-19 responses across state and territories, and leading prevention and health promotion programs. The breadth of these contributions to the COVID-19 response is a testament to the expertise and knowledge of RSPH.





Kamalini Lokuge and the Humanitarian Health Research Initiative: global impact

Associate Professor Kamalini Lokuge has 25 years of experience in high-risk health crises. She has worked as a clinician treating patients, an epidemiologist investigating transmission and implementing control of infectious disease outbreaks, and as a researcher aiming to improve the lives of those in greatest need. She leads the Humanitarian Health Research Initiative, a team* with skills covering epidemiology, outbreak management, mathematical modelling, anthropology, community engagement, general practice and public health.

Lokuge has a meritorious track record of providing front-line epidemic response including for Ebola, avian influenza, pandemic H1N1 (2009) influenza, and Lassa Fever, spanning Africa, the Middle East, Asia and Australasia.

Lokuge was quick to act as the COVID-19 pandemic unfolded, commencing work on Australia’s COVID-19 public health response before the country’s first positive case.

Lokuge and her team drew on their unique skills and experience to answer urgent health questions, providing early evidence on the need for rapid lockdown, contact tracing and management, and other aspects of pandemic control that were ultimately implemented.

Research by Lokuge and her team has contributed to the Australian National Disease Surveillance Plan for COVID-19; COVID-19 in Australia-Public Health Intelligence Plan; COVID-19 Series of National Guidelines; as well as approaches to COVID-19 control in the Aboriginal and Torres Strait Islander community-controlled sector. This work has included

guidance on appropriate surveillance strategies, the role of asymptomatic testing, protocols for valid estimation of the population-level prevalence of the syndromic surveillance case definition, and strategies for engaging with and supporting uptake in all community groups, including those at risk of poor engagement with response measures such as testing.

Lokuge also identified and addressed a major component that required strengthening in Australia’s contact tracing: the emphasis on the origin of infection for each case. She and her team conducted research demonstrating its importance, and coined the terms “upstream” and “downstream” contact tracing as part of bringing

about change. These terms are now part of standard terminology in Australia – having never been used worldwide before – including in the COVID-19 Series of National Guidelines reflecting best-practice contact tracing and management in Australia.

Lokuge and the Humanitarian Health Research Initiative team have arguably had the greatest influence on the Australian COVID-19 response of any public health research group.

Lokuge and her team define a new model for high impact research in many ways, most recently in their substantive role in Australia’s response to COVID-19. Lokuge works alongside many RSPH academics, as well as students, including training the next generation of health experts.

** The Humanitarian Health Research Initiative team working on the COVID-19 response includes Associate Professor Kathryn Glass; Dr Stephanie Davis; Dr Grazia Caleo; Professor Emily Banks; Dr Lisa Whop; Tatum Street; Dr Ginger Johnson; Polly Wallace; Dr Holly Vuong; Dr Leslee Roberts.*

Associate Professor Kamalini Lokuge is a public health physician, epidemiologist, and leads the Humanitarian Health Research Initiative at RSPH. Photo credit: Elsie Percival

On the Front Line

As the pandemic unfolded, RSPH experts made themselves available to government and non-government organisations as they prepared the nation for COVID-19. Within days researchers were seconded to health departments across the country, providing advice and monitoring for the rapidly evolving situation. Our students were deployed locally and internationally to assist with the Asia and the Pacific response.

MAE student Dr Tin Win has been deployed to the northern Chin State in his home country of Myanmar. His responsibilities included coordinating meetings with health and township authorities, quarantine site preparation, contact tracing, and fever surveillance supervision.



Image courtesy of ACT Health

Contact tracing training goes global

Contact tracing is key in the fight against COVID-19. This unprecedented demand for contact tracers means that more people are needed to be qualified for this role. Researchers from RSPH, Australia's only field epidemiology training program, collaborated with ACT Health to develop a contact tracing training course that international public health departments in the USA, Germany, the European Union and Mediterranean are now utilising.

Developed in early March, the e-learning program has enabled more than 100 students to be upskilled in contact tracing and act as surge capacity for contact tracing teams in the ACT.

The training included scenario-based exercises with feedback, data collection templates for case investigations and contact management, scripts and FAQs for conducting contact tracing interviews, and in-depth information on how to achieve the goals and outcomes of contact tracing.

The training, which was offered to Master of Public Health, medical and nursing students at ANU and UC, has seen students able to put their training into practice to help reduce the spread of COVID-19 in our community.

The Training Programs in Epidemiology and Public Health Interventions Network (TEPHINET) provided funding to translate these training materials into an e-learning program for global dissemination. ACT Health is continuing to collaborate with ANU in the development of these materials.

The list of international partners with which the training program materials have been shared with include the Global Outbreak Alert and Response Network, World Health Organisation, Médecins Sans Frontières (Doctors Without Borders) and

the European Centre for Disease Prevention and Control. These training materials have been accessed more than 200 times so far.

"This collaboration between the Research School of Population Health at ANU and ACT Health has demonstrated that training university students as contact tracers has been a very effective model to strengthen surge capacity during a pandemic response," says Dr Tambri Housen, Senior Research Fellow and MAE Curriculum Convenor.

"We were one of the first in the world to take this approach and other health departments across the globe have taken great interest in this model."

Training for local response second year medical student, ANU

"It has been a great opportunity to be trained in and carry out contact tracing for ACT Health's COVID-19 response. I found it to be a valuable albeit hectic introduction to real world public health in the midst of a global pandemic.

Importantly, it has been a privilege to help the ACT community, and to provide support to people that have had close contact with a confirmed case. I think something that is often not reported about contact tracing is the exposure to the raw emotions of people on the other end of the phone. The training we received prepared us well for this, by putting us through some curly training scenarios."

Ben Kinchington

RSPH experts combat COVID-19 in Australia and abroad



In the field with Dr Meru Sheel

Dr Meru Sheel has been helping our pacific neighbours prepare and respond to the COVID-19 pandemic. Dr Sheel supported the Kingdom of Tonga Ministry of Health's preparedness and response activities for a COVID-19 disease outbreak in January, and most recently returned from Papua New Guinea where she was part of the WHO team responding to the COVID-19 pandemic on strengthening surveillance, outbreak investigations and contact tracing working in close partnership with the Papua New Guinea's National Department of Health.

"Pacific Island Countries are separated by large distances, connectivity is challenging, and resources are limited in terms of the response 'architecture' and public health professionals. So it is really important that we have early systems in place."

Photo: Dr Meru Sheel in PNG. Photo courtesy of WHO Papua New Guinea.



At the request of Tangentyere Council, Alice Springs, Alyson Wright convened the training workshop: COVID-19 Supporting Public Health Responses, that used RSPH generated Aboriginal Health Worker COVID-19 training resources. The workshop was attended by Aboriginal community-based workers from Tangentyere, Menzies School of Health Research and Health practitioners from the Central Australian Aboriginal Congress, and the Central Australian Public Health Unit. RSPH PhD student Tamara Riley and Dr Meru Sheel also gave presentations in the workshop.

Empowering Aboriginal Health Workers key in battle against COVID-19

Protecting Aboriginal and Torres Strait Islanders from COVID-19 requires more than just an understanding of the virus itself. Empowering Aboriginal Health Workers and Practitioners, who have existing community and cultural knowledge, is key to controlling and managing COVID-19 outbreaks in remote Indigenous communities.

Alyson Wright and team have used their expertise and connections with community to rapidly develop a series of culturally appropriate training in infection control, contract tracing, interview techniques, and the use of personal protective equipment, and have made them available online to facilitate access.

“We can’t eliminate COVID-19 without a vaccination, but we can reduce the impact of disease by ensuring we have a skilled workforce who can respond quickly to outbreaks and areas of community transmission,” says Wright.

The team have focused on delivering training through online modules due the travel restrictions and border closures associated with COVID-19. The training modules can be completed for free online at the Australian Government’s Infectious Control Training Platform, and the Aboriginal

Health and Medical Research Council of NSW COVID-19 training website. Hard copies can also be sent to communities on request.

“The Aboriginal Health Workforce have important cultural knowledge and key relationships in their communities, so they are critical to helping with public health responses such as contact tracing, public health messaging in community, and supporting quarantine and isolation measures,” says Wright.

“While the training is focused on COVID-19, the skills developed in this training will help Aboriginal and Torres Strait Islander Health Workers respond and prevent other outbreaks in future.”

To date the training modules have been completed by over 36,000 people.

Our students and academics have been on the frontline of the COVID-19 response, and this is a brief example of their work. For a full list of “On the Front Line” activities, please see page 34.

COVID-19 control strategies

Advising the Australian Government Department of Health and ACT Health on COVID-19 control strategies: containment and social distancing, community engagement, health system strengthening and surveillance. *Kamalini Lokuge; Stephanie Davis; Emily Banks; Tatum Street; Ginger Johnson; Polly Wallace; Grace Joshy; Kathryn Glass; Ellie Paige; Eden Barrett*

Deployment to Christmas Island

Deployed with AUSMAT as part of the medical team caring for those in Quarantine on Christmas island. Included database management, public health and infection control advice. *Stephanie Davis*

Diamond Princess Repatriation

AUSMAT Deployment to assist with the Diamond Princess Repatriation in Darwin in February 2020. *Martyn Kirk*

Secondment to the National Aboriginal Community Controlled Health Organisation

Short term secondment as medical advisor to assist with the COVID-19 response. *Jason Agostino*

Chair, Queensland Health Reform Planning Group

Engaged by Queensland Health to Chair a high level group making recommendations for health system reform resulting from COVID-19. *Meegan Fitzharris*

COVID-19 preparedness at Gunbalanya Health Centre, NT

Providing advice to assist the health centre staff support the Traditional Owners with COVID-19 preparations. *Philippa Binns*

ASEAN MAE scholars in the Asia Pacific

Working with the Ministries of Health to advise local health authorities, providing training for health care workers, leading contact tracing. Scholars in Cambodia assisted the Cambodian CDC with response efforts related to the Westerdam cruise ship. *Srean Chhim; Elenor Kerr; Stephanie Wheeler; Ha-Linh Quach; Ngoc-Anh Hoang; Tin Tun Win; Ei Ei Zar Nyi.*

Collaboration and secondment with the Department of Social Services

Providing advice and analysis to build understanding of potential mental health consequences of COVID-19 and implications for social policy. *Peter Butterworth*

National COVID-19 Health and Research Advisory Committee

Provide advice on Australia's health response to the COVID-19 pandemic to the Chief Medical Officer, specifically response measures and resurgence. *Kamalini Lokuge*

Rapid Research Response

We are renowned for our interdisciplinary approach to addressing health threats like the COVID-19 pandemic. Research and data analysis is at the heart of what we do, and our academics pivoted quickly to provide rapid evidence summaries, test new and emerging methods of disease surveillance, and conducted qualitative studies to understand community perceptions, gaps in messaging, and ways of combating misinformation.

Waste water at Canberra's sewage treatment plant is being tested for traces of the COVID-19 virus. RSPH Researcher Dr Aparna Lal hopes this method of testing will act as an early warning system for community transmission within the ACT. Please see the following page for more information on this project.



Photo: Lannon Harley, ANU

Tracking COVID-19 transmission through our sewage

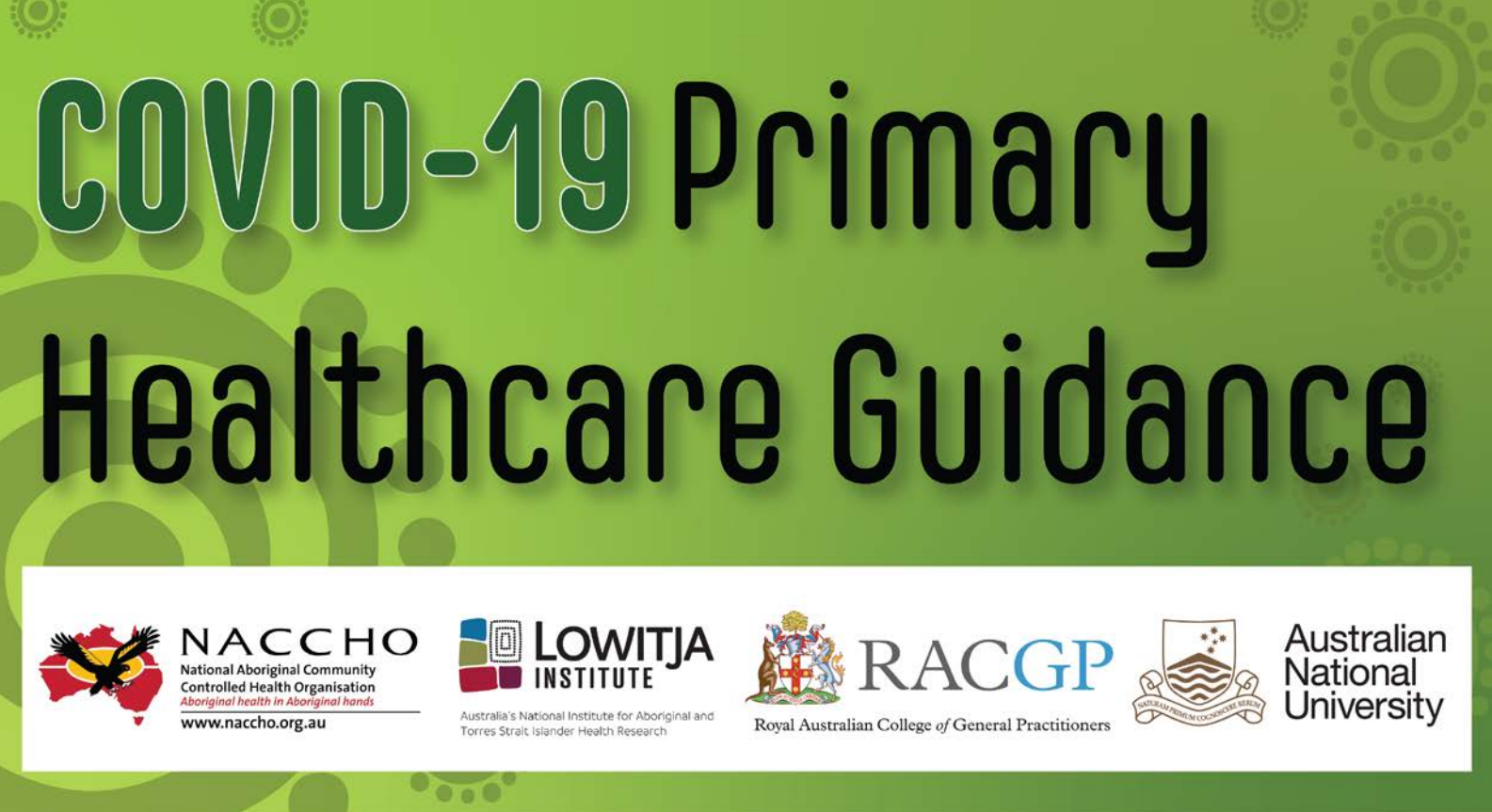
Detecting COVID-19 in Canberra's sewage can act as early warning that the virus is circulating in ACT, and provide critical information for preventative interventions and health service planning. Dr Aparna Lal is leading a team who are examining Canberra's sewage water for traces of COVID-19.

"The current focus on data from testing clinics and hospital reporting does not provide a good estimate of community transmission and won't capture people who may be infectious but not show symptoms until significantly later," says Dr Lal.

"Detection of the virus from sewage gives us the ability to monitor the circulation of the virus in the environment. And it is a rapid and inexpensive way of tracking the coronavirus and potential community transmission."

Samples from Icon's sewage treatment plant were tested daily throughout May using advanced genetic analysis, and compared to a range of viruses. While genetic material for a number of these viruses was discovered, indicating the testing methodology works, no traces of COVID-19 were found in the ACT sewage system. This coincides with the period that the ACT was declared free of any new coronavirus cases.

"This method shows us that we can actively monitor COVID-19 through sewage and that based on all the samples we have processed there are no high levels of undetected community transmission in the ACT," Dr Lal said.



Developing culturally appropriate recommendations for Aboriginal and Torres Strait Islander peoples

As COVID-19 spread around the world, it became clear that practical and culturally appropriate advice for prevention and management of COVID-19 in Aboriginal and Torres Strait Islander people was urgently needed. Researchers from RSPH joined forces with the National Aboriginal Community Controlled Health Organisation, Royal Australian College of General Practitioners, and the Lowitja Institute, to conduct rapid evidence summaries to underpin the development of COVID-19 primary healthcare guidance.

Recommendations have been developed in response to questions from health professionals caring for Aboriginal and Torres Strait Islander peoples. To date advice has been provided on

quarantine measures for healthcare workers travelling to remote communities; transporting patients who do not have confirmed or probable COVID-19; and quarantine measures for healthcare workers travelling from higher prevalence areas to low prevalence areas.

"This partnership is driven by community needs. I hope the guidance generated through this Aboriginal-governed process will be trusted advice that can support health care providers in practical decision making," says RSPH Dr Katherine Thurber, member of the Executive Group developing and overseeing the process for collaborative guideline development and endorsement.

Linking long-term health outcomes with COVID-19

(ATHENA COVID-19 Study)

Professor Kim Greaves and Associate Professor Rosemary Korda from RSPH are leading a study that aims to quantify outcomes in all people diagnosed with COVID-19 in Queensland, over time and in relation to patient sociodemographic and health characteristics. The study links Queensland COVID-19 notification data to routinely collected health data, including hospital

admissions, emergency department, death data, and general practice data. The study will provide valuable information to better understand predictors of outcomes in people diagnosed with COVID-19 and to measure the impact of COVID-19 on the population. The study is funded by Queensland Health.

Combating COVID-19 misinformation (KAP survey)

Dr Tambri Housen and her team conducted a study to help address the coronavirus "information pandemic" and improve communication.

"We want to make sure that people receive the correct information so they can make informed decisions about how to protect themselves and their loved ones from COVID-19."

"We need to know what people understand and believe about COVID-19 to improve risk messaging," Dr Housen said ahead of the study launch.

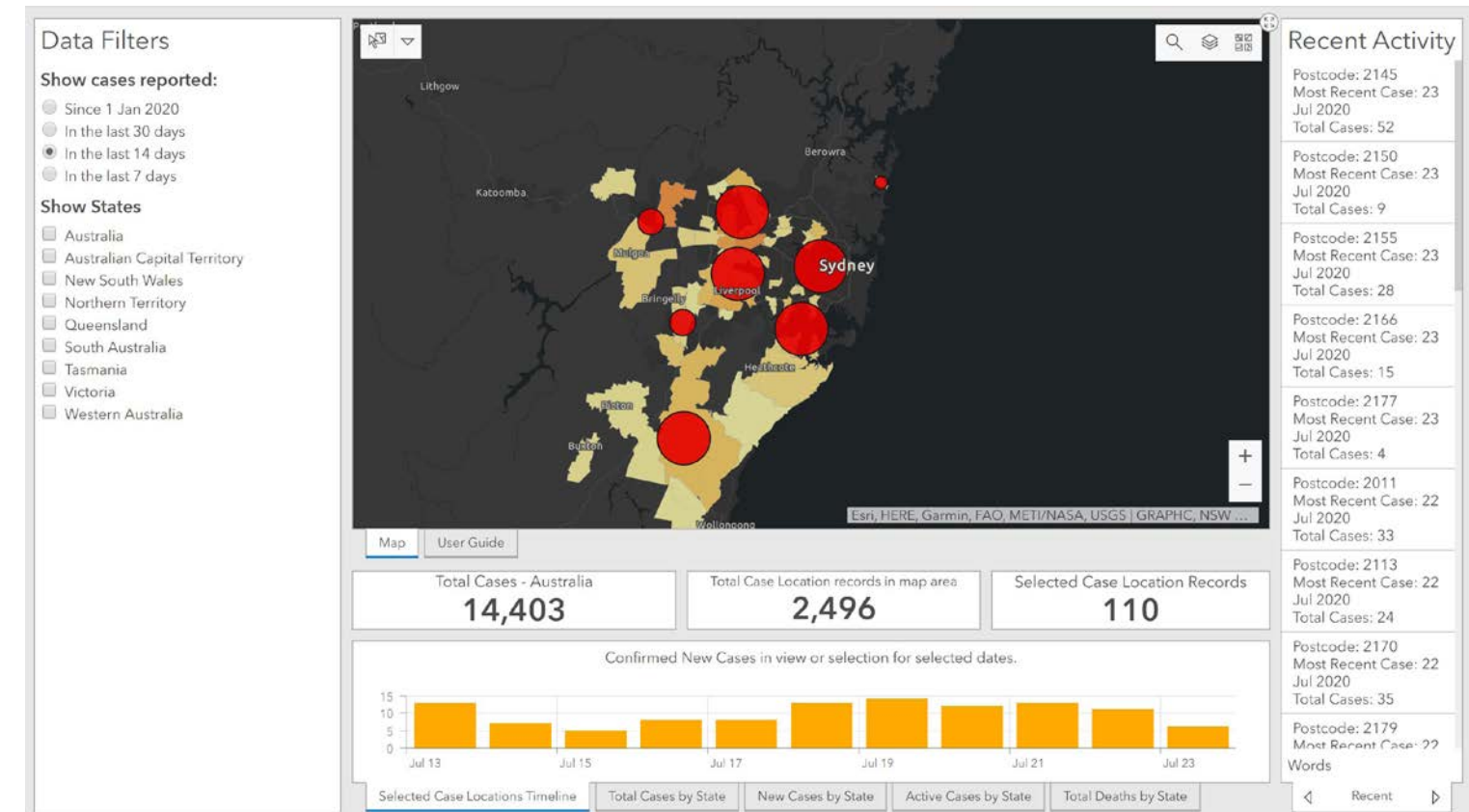
Collaborating to compute COVID-19 preparedness

Associate Professor Kathryn Glass has contributed to several modelling projects supporting the COVID-19 response. Early modelling work in collaboration with the University of Melbourne identified the impacts of an uncontrolled COVID-19 outbreak on the health system, and estimated the likely personal protective equipment requirements, particularly mask usage. As numbers initially increased in Australia, Glass and RSPH colleagues modelled

surveillance strategies to advocate for higher testing rates and broader testing patterns. More recent research includes working with La Trobe University and the University of Melbourne to quantify the long-term testing requirements across states and territories. Glass has also been collaborating with the Crawford School to compare the economic impact of more or less stringent social distancing measures in light of the resurgence of transmission in Victoria.



MAE students Ngoc-Ahn and Ha-Linh testing masks and PPE for correct fit and integrity prior to being deployed with the Ministry of Health in Vietnam to conduct COVID-19 contact tracing in a province close to Hanoi.



CRISPER: COVID-19 Real-time Information System for Preparedness and Epidemic Response, produced in collaboration with GRAPHIC team at RSPH, other researchers from ANU, APPRISE Partners, Menzies School of Health Research, University of Adelaide, and Health Departments.

Tracking COVID-19 with a new data visualisation tool

As COVID-19 spreads throughout a community, residents want to know about infection in their neighbourhood. But data can be difficult to interpret, may not be available in real-time, and sometimes come from unofficial sources.

Associate Professor Colleen Lau and team have been awarded funding from APPRISE (an NHMRC CRE) to address this problem. Together they are developing a real-time information and visualisation dashboard that maps the spread of COVID-19 in Australia over space and time. The system will include a data engine, an interactive mapping tool, and an automatic alert system that sends out messages to registered users based on their pre-defined geographic locations and other thresholds of interest, e.g. more than 10 cases in specific postcodes.

“This project will make data come alive, and optimise their use for decision making. It isn’t about generating new data, rather making it more useful, user friendly, and easy to interpret. People are interested in what is going on around them, and having good information easily available helps minimise misinformation,” says Lau.

There will be several platforms aimed at different users such as public health practitioners, clinicians, decision makers, and high-risk groups.

“Clinicians, for example, might have access to additional data not available to the public such as clinical information like signs and symptoms, and causes of deaths in different groups of people.”

The project aims for real-time information by linking data from multiple sources such as health departments, laboratories, case investigations, and other sources online. The system will also include spatial data so that we can more quickly and easily identify any hotspots of transmission. This will aid national response to COVID-19 by streamlining data collection and analyses across all states and territories.

“This system will initially focus on COVID-19, but will be designed so that it is ready to be used for future outbreaks and other public health emergencies.”



COVID-Clever cartoon for kids

While the jury is still out on the precise role children play in transmitting COVID-19, we can all agree that good hand hygiene and physical distancing is critical in the fight against coronavirus.

Professor Darren Gray and team at the ANU, QIMR Berghofer Medical Research Institute and the University of Queensland are developing an educational cartoon for primary school children to help them understand the importance of hand hygiene and physical distancing.

“There has been a lot of health messaging regarding COVID-19, but to date very few have been aimed at children. Our project will address this gap with a health campaign specifically for kids,” says Gray.

Researchers will design a cartoon narrative based on their already successful “Magic Glasses” campaign.

“In the cartoon, a Doctor will give children ‘magic glasses’ that allows them to see the SARS-CoV-2 virus on surfaces, their hands, in their bodies, and in the air. They then learn good hygiene and distancing practices, then re-visit places they found the virus armed with this new knowledge, and see how they avoid getting sick,” says Gray.

We know this style of health education has tangible results.

“Our previous ‘Magic Glasses’ campaign showed a 50% reduction in intestinal worm infection in communities where it was rolled out. We expect a

cartoon tailored to COVID-19 will help kids avoid getting sick and reduce the risk of them passing it on if they do.”

Over the coming weeks Gray and his team will undertake the formative research phase – interviewing children, teachers, parents, and health officials – to determine what they already know about COVID-19, and identify any knowledge gaps or needs.

“It’s critical we have the right messaging combined with a style of educational cartoon that resonates with children and teachers,” says Gray. “We will then develop a script, and hope to commence work with an animation company soon after but we still required additional funding.”

Following a generic version, the team aims to tailor the cartoon for different audiences, starting with one appropriate for Aboriginal and Torres Strait Islanders, as well as Asian cultures.

“The benefits of this program are global and go well beyond just COVID-19, it is applicable to the flu and other respiratory diseases.”

**This project is a collaboration between RSPH, RSP, ANUMS, QIMR Berghofer Medical Research Institute, the University of Queensland, the Shape Group and the ACT Education Directorate. The formative research phase is funded by the ANU College of Health and Medicine, and the Australian Infectious Disease Research Centre.

Airborne transmission of COVID-19 – a rapid and systematic review

Most coronavirus infections are transmitted via respiratory droplets through the mucosal or direct inhalation route and are manifested as respiratory diseases. However, human coronaviruses such as SARS-CoV-2 (the COVID-19 virus) show environmental resistance that makes airborne transmission with smaller aerosols plausible.

Although fine particles, pollen and dust in ambient air have all been linked to other infectious diseases in the past, their role in the transmission of COVID-19 and other coronaviruses has not been systematically reviewed so far. Theoretically, inhalation of virus-laden aerosols could transport the virus deeper into alveolar regions, which could increase the risk of infective transmission.

In this systematic review, researchers are analysing evidence on airborne transmission of COVID-19 and other coronaviruses in indoor and outdoor settings. They are investigating how aerosols may act as carriers of coronaviruses in the air and into the human respiratory system causing infection.

To this end researchers analysed peer-reviewed studies (published or accepted) reporting on airborne transmission of any human coronavirus, including SARS-CoV-2. Their assessment considers experimental, epidemiological, and mathematical modelling studies in any human population.



Photo by Adam Nieścioruk on Unsplash



MAE scholar Srean Chhim training COVID-19 contact tracing teams. He is currently deployed with the Ministry of Health and Centre for Disease Control in Cambodia.

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Our students and academics have been working hard to discover more about COVID-19 itself, its impact on society, and this is a brief example of their work. For a full list of research activities, please see page 38.

Qualitative study of community and health workers responses to COVID-19

Rapid appraisal of healthcare workers' perceptions of care delivery in the context of COVID-19 epidemic to inform health service delivery. *Cathy Banwell; Ginger Johnson; Kamalini Lokuge; Anna Olsen; Christine Phillips; Liana Leach; Christine Labond*

Clinical trial of chloroquine prophylaxis for health care workers in Queensland

Contributing to this large trial being led by the Australian Defence Force Malaria and Infectious Diseases Institute (ADFMIDI) as Chair of the Data Safety Review Board. *Colleen Lau*

COVID-MINDS network: Global mental health during the COVID-19 pandemic

International steering group for the network of longitudinal studies on the global mental health impact of COVID-19. *Alison Calear*

The economic shock and perceptions of deservingness

Researching how the economic shock of the COVID-19 has influenced public perceptions of those receiving income support using pre-/post-COVID experimental design. In collaboration with University of Melbourne. *Peter Butterworth; Aino Suomi*

Mental health professionals' use of telehealth during COVID-19

In collaboration with the Black Dog Institute to provide practice-based evidence can be used to assist the mental health workforce to manage major changes to their usual ways of working in the future. *Louise Farrer; Philip Batterham; Julia Reynolds; Alison Calear*

Tracing COVID-19 cases on planes

Research project developing national policy around inflight infections and need for contact tracing. In collaboration with QANTAS; Virgin Australia; Air New Zealand; Australian Government; New Zealand Ministry of Health; State and Territory health departments. *Martyn Kirk; Anna Rafferty; Luis Furuya-Kanamori; Kathryn Glass; Freya Hogarth; Ross Andrews*

Managing the risks related to provision of in-person essential allied health primary care services during the COVID-19 pandemic

Working in collaboration with National and State Departments of Health and Allied Health to develop initial guidelines and checklists to support the continued care while minimising COVID-19 transmission risk. *Kamalini Lokuge; Stephanie Davis; Tatum Street; Holly Vuong; Sydney Jantos; Ginger Johnson*

COVID-19 transmission pathways and the effectiveness of public health measures

Focusing on environmental health precautions and implications for public health. *Sotiris Vardoulakis; Meru Sheel; Aparna Lal; Darren Gray*





Communicating Science to the Public

Effective evidence-based communication is essential for protecting public health during a pandemic. RSPH experts have contributed to panels, provided journalists with interviews, written op-eds, developed training materials, delivered presentations, conducted webinars, and created web resources to help keep the community informed.

Dr Jo Lane, RSPH research fellow and clinical psychologist, has engaged widely with ANU staff students, and the community on wellbeing during the COVID-19 pandemic. Dr Lane has presented on-line webinars, engaged with 'University Mental Health Day', and produced a video to complement the 'Feeling good at home during COVID-19' project (see page 30). In addition, Dr Lane has worked with television and print media to discuss how to improve social interactions while wearing a mask, and psychological wellbeing in general



Photo by Patrick Hendry on Unsplash

COVID-19 and mental health

ANU Centre for Mental Health Research expert Professor Luis Salvador-Carulla and John Mendoza from ConNetica Consulting embarked on an ambitious international webinar series to share first-hand learnings about the global impact on mental health from those in countries first-affected.

On the cusp of our Australian lockdown, the two co-hosts zoomed into action to share early experiences of the impact of COVID-19 on mental health services and community wellbeing in Europe, United Kingdom, Denmark, Taiwan, USA and Australia. The ambitious project saw eight webinars delivered over four weeks in April.

The series centred on countries with varied impacts ranging from a highly successful containment of the outbreak such as that of Taiwan to those more significantly impacted (at the time) such as Spain, Italy and the UK. Over 500 people attended the events in real-time, and the webinar recordings have since been accessed more than 1,300 times until May 2020.

Early insights highlighted advantages of being ready, having universal healthcare, remote access to healthcare and social support services, and a rehearsed pandemic plan. Slow responses led to services being overwhelmed, and the virus spreading faster.

Professor Salvador-Carulla said, "Even then, all regions were anticipating unprecedented demand for mental health services post lockdown, and the need for vigilant suicide watch."

Important learnings included protecting mental health care providers with access to and training in the use of PPE (Personal Protective Equipment), finding new ways to provide care, such as through telehealth, and having special supports in place for vulnerable groups, such as children with neurodevelopmental disorders (Boston).

The series ended with a Roundtable of Australian experts reflecting on what helps and hinders mental healthcare in a pandemic and considering opportunities for rethinking longer-term ongoing mental healthcare.

Associate Professor Kamalini Lokuge has continually engaged with the community and media throughout the pandemic. Lokuge joined a preeminent panel of experts on the National Press Club, was interviewed on 60 Minutes, appeared in an ANUTV conversation with VC Professor Brian P. Schmidt, and has provided comment for a myriad of digital and print publications including the Sydney Morning Herald and the Canberra Times.

Feeling good at home during COVID-19

An important tool in the fight against community transmission of COVID-19 is the need for the whole population to physically distance ourselves from others. As a result people around the world suddenly found themselves confined at home for extended periods of time, as they began to work, attend school and socialise remotely. This change in routine and lifestyle has been a difficult adjustment for many people. The RSPH's PHXchange (Population Health Exchange) team anticipated this significant challenge to population health and wellbeing, beyond the immediate infection control challenge, and responded.

To this end the PHXchange instigated and coordinated a collaboration across ANU with experts from RSPH; the Research School of Psychology; the School of Culture, History and Language; and the College of Health and Medicine COVID-19 Taskforce. Together they created an online resource "Feeling good at home during COVID-19" that covers aspects of self-care for people staying in their homes. It covered aspects from eating well, enjoying nature, to noticing emotions and staying connected, limiting news intake, and more – all evidence-based practical and effective ways to protect health and wellbeing.


Our in-house artist expressed these messages in beautiful images to accompany the easy-to-read text. Generating this beautiful and engaging imagery was a core aspect of the project. Typically, health messaging relies on stylised images or cartoons, however, in keeping with the intent of the 'feel good at home' messages, these charming water colour paintings evoke a sense of calmness and relaxation.

ACT Health link directly to the 'Feeling good at home during COVID-19' on their website, and the page has in excess of 2,850 page views as of publication.



The Population Health Exchange (PHXchange)

Partnerships between researchers and stakeholders have been vital during this pandemic. The PHXchange has contributed to the response on multiple COVID-19 projects by coordinating collaborations between academics, governments, business, and non-government organisations. One of these collaborations delivered the evidenced-based "Feeling Good at Home" messages (described on this page) to bring good science to Australians in lockdown. The PHXchange team has also helped to develop the central ANU COVID-19 database that is being used to record the extent and impact of the ANU COVID-19 response and collaborations (see pages 34-42 for project list).



Our students and academics have engaged extensively with the media, and this is a brief example of their work. For a full list of engagement projects please see page 42.

Wellbeing during COVID-19 video and resources

Resources include a video, an article on mindfulness and colouring in for ANU Alumni. These resources help provide information to the public on how to maintain wellbeing during COVID-19. *Jo Lane; Tobias James; Erin Walsh; Ginny Sargent*

Global Development Learning Network Knowledge Sharing on COVID-19

GDNL is a World Bank affiliate and operates across 80 countries and our academics contributed to five webinars to share international COVID-19 learnings for officials, NGOs and academics. *Meru Sheel; Kamalini Lokuge; Glenn Withers; Maree Tait; Jamie Kidston*

Extensive media engagement

Sharing expertise widely in order to communicate with the public on a variety of topics including: what is known about COVID-19 (especially in the first few weeks), how virus spread, how spread can be stopped, the purpose of quarantine and contact tracing, the population health implications. *Kamalini Lokuge; Stephanie Davis; Meru Sheel; Aparna Lal; Lyndall Strazdins; Darren Gray*

Webinar - In Conversation with Dr Liana Leach: Working from Home with Caring Responsibilities

For pandemic control, housing is the best medicine. Published article in Croakey in collaboration with scholars from Monash University and University of Sydney. *Liana Leach; Jason Agostino; Katherine Thurber*

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Will the modelling tell us if we are getting the fight against COVID-19 right? Probably not

Opinion piece in the Sydney Morning Herald. *Mahomed Patel*

Photo by Engin Akyurt on Unsplash

RSPH COVID-19 projects

Below is a summary of projects undertaken at ANU in response to the COVID-19 pandemic that include RSPH researchers and students. This information was drawn directly from the central COVID-19 database, and is up to date as of 1 August 2020.

COVID-19 control strategies

Advising the Australian Government Department of Health and ACT, SA, WA and Victorian Health Departments on COVID-19 control strategies: containment and social distancing, community engagement, health system strengthening and surveillance. *Kamalini Lokuge; Stephanie Davis; Emily Banks; Tatum Street; Ginger Johnson; Polly Wallace; Grace Joshy; Kathryn Glass; Ellie Paige; Eden Barrett*

Deployment to Christmas Island

Deployed with AUSMAT as part of the medical team caring for those in Quarantine on Christmas island. Included database management, public health and infection control advice. *Stephanie Davis*

Diamond Princess Repatriation

AUSMAT Deployment to assist with the Diamond Princess Repatriation in Darwin in February 2020. *Martyn Kirk*

Secondment to the National Aboriginal Community Controlled Health Organisation

Short term secondment as medical advisor to assist with the COVID-19 response. *Jason Agostino*

Collaboration and secondment with the Department of Social Services

Providing advice and analysis to build understanding of potential mental health consequences of COVID-19 and implications for social policy. *Peter Butterworth*

National COVID-19 Health and Research Advisory Committee

Provide advice on Australia's health response to the COVID-19 pandemic to the Chief Medical Officer, specifically response measures and resurgence. *Kamalini Lokuge*

Chair, Queensland Health Reform Planning Group

Engaged by Queensland Health to Chair a high level group making recommendations for health system reform resulting from COVID-19. *Meegan Fitzharris*

COVID-19 preparedness at Gunbalanya Health Centre, NT

Providing advice to assist the health centre staff support the Traditional Owners with COVID-19 preparations. *Phillippa Binns*

MAE scholars in the Asia Pacific

Working with the Ministries of Health to advise local health authorities, providing training for health care workers, leading contact tracing. Scholars in Cambodia assisted the Cambodian CDC with response efforts related to the Westerdam cruise ship. *Srean Chhim; Elenor Kerr; Stephanie Wheeler; Ha-Linh Quach; Ngoc-Anh Hoang; Tin Tun Win; Ei Ei Zar Nyi; Khone Bounma.*

Aboriginal and Torres Strait Islander COVID-19 Advisory Group

Development of a number of Aboriginal and Torres Strait Islander specific additions to the Series of National Guidelines (SoNGs) and identify/address emerging issues. *Jason Agostino*

Expert advice to Asia Pacific Governments

Providing COVID19 prevention and control strategies, supporting international response and developing countries (Asia-Pacific) through webinars and protocol development. Also international collaboration and coordination with GOARN research in the region. Advisor on the PHAA COVID19 Advisory Group. *Meru Sheel*

MAE Scholars in National Incident Rooms

Mikala Sedgwick; Genevieve O'Neill; Liz Walker; Tracy Tsang; Malinda Chea; Luke Le Grand

COVID-19 Training Modules for Aboriginal and Torres Strait Islander Health Workers

In collaboration with NACCHO and Department of Health the team developed 5 online training modules to support Aboriginal and Torres Strait Islander Health Workers with key public health responses and knowledge on COVID-19. *Alyson Wright; Bobby Maher; Tamara Riley; Tyler Malone; Charlee Law; Stephen Harfield; Mikala Sedgwick.*

Contact tracing surge capacity training for the National response

Collaboration with ACT Health and Australian Government Department of Health in training surge capacity for case investigations and contact tracing in the ACT and Victoria. These training materials have been shared with all States and Territories. *Tambri Housen, Martyn Kirk, Polly Wallace.*

MAE scholars in Australia's states and territories

Assisting with surveillance, contact tracing and training, assisting in state operation rooms and outbreak teams. Scholars are actively involved in situational awareness, drafting clinical and public health guidelines, participating in briefing and planning meetings with hospital clinicians and managers, the development of templates for outbreak response, and the development of fact sheets for clinicians and the general public. *Anny Huang; Kirsten Williamson ; Noni Winkler; Kushani Marshall; Stephanie Main; Stephanie Curtis; Chris Bailie; Troy Laidlow; Margi Niki*

Secondment to Queensland Health

Full-time secondment to QLD Public Health Incident Controller team for twelve months *Ross Andrews*

Secondment to NSW Health

Seconded for two days per week in NSW Health Public Health Emergency Operations Centre *Charlee Law*

Contact tracing training

Collaborating with ACT Health and Australian Government Department of Health to deliver training sessions and online modules. *Tambri Housen; Meru Sheel; Ben Polkinghorne; Sam Colquhoun; Florian Vogt; Polly Wallace; Tim Sloan-Gardner.*

GP Peak Body COVID-19 Response Group

Collaborating with Royal Australian College of General Practitioners to provide input into policy for Primary Care. *Jason Agostino*

Clinical Steering Committee for Cochrane Living Evidence Consortium's COVID-19 Living Guidelines

Jason Agostino

Expert Advisory Committee for Cochrane's 'Mild COVID-19' Management Group

Jason Agostino

Secondment to the World Health Organization County Offices, Tonga and PNG

Meru Sheel

Secondment to the Australian Government Department of Health

Raglan Maddox; Jane Desborough; Philippa Binns; Polly Wallace; Michael Kidd; Stephanie Davis; Ben Polkinghorne; Sam Colquhoun; Anna Rafferty; Tambri Housen; Danielle Cribb

Secondment to the World Health Organization Regional Office for the Western Pacific (WPRO)

Amy Parry

Protecting, detecting and controlling COVID-19 in Aboriginal and Torres Strait Islander communities in Queensland

Review of discreet Indigenous communities pandemic preparedness plans, advice regarding Indigenous students returning to communities and boarding schools, quarantine protocols, community engagement. *Lisa Whop*

COVID-19 control strategies for return to ANU campus

Advice for safe return to campus: surveillance, ARI surveys, and implementing social distancing measures. *Kamalini Lokuge; Stephanie Davis; Darren Gray*

Secondments to COVID-19 Primary Care Response Group, Primary Care Division, Australian Government Department of Health

Michael Kidd; Sally Hall; Jane Desborough; Stephanie Davis

Communicable Disease Network Australia COVID-19 working group

Working with Federal, State and Territory Health Departments. *Martyn Kirk*

COVID-19 Expert Reference Panel – Genomics

Developing national policy around use of genomics for identifying sources of SARS-CoV-2. *Martyn Kirk*

COVID-Net

Development of a nationally coordinated network for investigation of clusters and outbreaks with the Australian Government Department of Health; State and Territory Health Departments. *Martyn Kirk; Anna Rafferty; Freya Hogarth; Chris Baille; Tambri Housen*

CDNA Series of National Guidelines Committee - COVID-19

Chair Committee of Australian Government and State and Territory Health Departments public health guideline committee. *Martyn Kirk; Anna Rafferty; Stephanie Davis*

eModule Contact Tracing Learning Series by ANU and PHAC: Social determinants and well-being for contact tracing

Collaborating with the Public Health Agency of Canada and ACT Health to develop a 3 Module Learning Series for Contact Tracing, covering mental health, social determinants and cultural aspects of contact tracing. Available through WHO/GOARN. *Tambri Housen; Ben Polkinghorne; Tehzeeb Zulfiqar; Cathy Banwell; Liana Leach; Christine LaBond*

COVID-19 contact tracing

A group of 12 students volunteered to assist with contact tracing with the ACT Health Directorate.

National Incident Response, Department of Health

Two week involvement in the epi team within the NIR, Department of Health assisting with daily COVID-19 epi updates including Communicable Disease Intelligence (CDI) weekly epi report. *Olivia Williams*

COVID-19 Outbreak Epidemiology at Victorian Department of Health and Human Services

Working with the Public Health Intelligence and operations teams responsible for outbreak response. *Elenor Kerr; Stephen Lambert*

COVID-19 Surveillance and Outbreaks in Victoria, March to July 2020

Seconded to the COVID-19 surveillance team in the Victorian COVID-19 Incident Management Team. Assisting with notable Victorian first spike COVID-19 outbreaks. *Stephanie Main*

COVID-19 Test Surveillance at Residential Aged Care Facilities for Queensland's Department of Health, QLD

Establishing a state-wide COVID-19 test surveillance system for residential aged care facilities using test data from Queensland's notifiable condition system. *Troy Laidlow, Stephen Lambert*

COVID-19 Outbreak Analysis in Vientiane, Laos PDR

COVID-19 outbreak analysis in Vientiane and assisting with development, training and roll out of a national events based surveillance system for Laos. *Khone Bouma, Sam Colquhoun*

Contributions to Operation COVID ASSIST – Australian Defence Force

Planning and launch of a key component to a major ADF COVID-19 Research project, including devising, developing, and overseeing the implementation of a mobile phone app for self-reported daily health tracking of ADF members. *Luke Le Grand, Stephen Lambert*

Chloroquine Chemoprophylaxis Countermeasures against COVID-19 (C4) study - Australian Defence Force Malaria and Infectious Diseases Institute

Consultation regarding data gathering, linkage and use in the early stages of the C4 study. *Olivia Williams, Colleen Lau*

COVID-19 Advisor to the Victorian Department of Health and Human Services

Providing epidemiological analysis and advise on control of disease resurgence in Victoria including reports on control in high risk settings and populations, aged care and health care. *Kamalini Lokuge*



Photo by Logan Weaver on Unsplash

Qualitative study of community and health workers responses to COVID-19

Rapid appraisal of healthcare workers' perceptions of care delivery in the context of COVID-19 epidemic to inform health service delivery. *Cathy Banwell; Ginger Johnson; Kamalini Lokuge; Anna Olsen; Christine Phillips; Liana Leach; Christine Labond*

Clinical trial of chloroquine prophylaxis for health care workers in Queensland

Contributing to this large trial being led by the Australian Defence Force Malaria and Infectious Diseases Institute (ADFMIDI) as Chair of the Data Safety Review Board. *Colleen Lau*

COVID-MINDS network: Global mental health during the COVID-19 pandemic

International steering group for the network of longitudinal studies on the global mental health impact of COVID-19. *Alison Calear*

The economic shock and perceptions of deservingness

Researching how the economic shock of the COVID-19 has influenced public perceptions of those receiving income support using pre-/post-COVID experimental design. In collaboration with University of Melbourne. *Peter Butterworth; Aino Suomi*

Mental health professionals' use of telehealth during COVID-19

In collaboration with the Black Dog Institute to provide practice-based evidence can be used to assist the mental health workforce to manage major changes to their usual ways of working in the future. *Louise Farrer; Philip Batterham; Julia Reynolds; Alison Calear*

Tracing COVID-19 cases on planes

Research project developing national policy around inflight infections and need for contact tracing. In collaboration with QANTAS; Virgin Australia; Air New Zealand; Australian Government; New Zealand Ministry of Health; State and Territory health departments. *Martyn Kirk; Anna Rafferty; Luis Furuya-Kanamori; Kathryn Glass; Freya Hogarth; Ross Andrews*

COVID-19 control strategies: developing home-based care protocols

Kamalini Lokuge; Grazia Caleo; Stephanie Davis

National Coronavirus Modelling Workshop

Co-chair, in collaboration with National Government Agencies; academic institutions; State and Territory Health Departments. *Martyn Kirk*

Managing the risks related to provision of in-person essential allied health primary care services during the COVID-19 pandemic

Working in collaboration with National and State Departments of Health and Allied Health to develop initial guidelines and checklists to support the continued care while minimising COVID-19 transmission risk. *Kamalini Lokuge; Stephanie Davis; Tatum Street; Holly Vuong; Sydney Jantos; Ginger Johnson*

COVID-19 transmission pathways and the effectiveness of public health measures

Focusing on environmental health precautions and implications for public health. *Sotiris Vardoulakis; Meru Sheel; Aparna Lal; Darren Gray*

Magic Glasses: COVID-19

An evidence-based cartoon which is acts as a hygiene education tool for children, in collaboration with QIMR Berghofer Medical Research Institute; University of Queensland. *Darren Gray; Matthew Kelly; Johanna Kurscheid; Kinley Wangdi; Michael Smithson; Mary Mationg; David Pasalich*

ATHENA COVID-19 data linkage study: predictors of outcomes in people with COVID-19 (QLD)

Quantifying outcomes in all people diagnosed with COVID-19 in Queensland, over time and in relation to patient sociodemographic and health characteristics. *Rosemary Korda; Jennifer Welsh; Ellie Paige; Emily Banks; Hsei Di Law*

Airborne transmission of COVID-19 and other coronaviruses in indoor and outdoor environments

A rapid systematic review with international collaborators to inform advice on social distancing, ventilation of indoor spaces and personal protective equipment use in different settings. *Sotiris Vardoulakis; Daniela Andrea Espinoza Oyarce, Simon Haberle*

Potential association between COVID-19 pandemic and global social interaction

Muhammad Shahdaat Bin Sayeed

COVID-19 Knowledge Attitudes and Practices (KAP) Survey

Surveying the knowledge, attitudes and practices of Australians, in collaboration with James Cook University. Results will help inform the public health response. *Tambri Housen; Samantha Colquhoun; Kudakwashe Chani; Erin Walsh; Rachael Rodney Harris; Ginny Sargent; Emma Field; Iain Walker; Andrea Timothy*

Water and COVID-19- a rapid review

A rapid review was conducted and shared as a policy brief with DFAT to inform the policy response. *Aparna Lal; Anthony Slatyer; Robyn Lucas*

Development of NACCHO/RACGP COVID-19 Primary Healthcare Guidance for Aboriginal and Torres Strait Islander peoples

A rapid review in collaboration with NACCHO; Lowitja Institute; RACGP. *Katherine Thurber; Jason Agostino; Jill Guthrie; Lachlan Russell; Karl Skewes; Deborah Wong; Eden Barrett; Rubijayne Cohen; Tamara Riley; Phyll Dance; Makayla-May Brinckley; Andrea Timothy; Charlee Law; Raglan Maddox; Bobby Maher; Mikala Sedgwick*

Boosting health behaviours to flatten the curve

Identifying the social factors that result in greater hand hygiene and social distance. *Diana Cardenas; Mark Stevens; Tegan Cruwys; Nasser Bagheri; Kate Reynolds; Michael Platow; Iain Walker*

Detecting COVID-19 in wastewater (sewage)

Detecting COVID-19 in sewage to serve as an early warning system for anticipated increases. In collaboration with ICON Water and the ACT Government. *Aparna Lal; Graham Mann; Peter Collignon; Kathryn Glass; Darren Gray; Sotiris Vardoulakis*

Rapid analysis of mental health response to COVID-19 worldwide

In collaboration with the Pandemic Mental Health International Network. *Sebastian Rosenberg; Luis Salvador-Carulla; Marita Linkson*

Evidence reviews

Providing support to the WHO Western Pacific Regional Office on reviewing COVID-19/SARS-CoV-2 evidence to support response decision making. *Amy Parry*

CRISPER: COVID-19 Real-time Information System for Preparedness and Epidemic Response

Providing a national real-time information and visualisation system to map the spread of COVID-19 in Australia over space and time. In collaboration with University of Adelaide; Menzies School of Health Research; Medibank; NHMRC. *Colleen Lau; Ross Andrews; Emma Field; Luis Furuya-Kanamori; Olivia Williams; Meru Sheel; Charlee Law; Paul Konings; Michael Hewett; Olivia Williams; Kirsty Douglas; Stephanie Curtis*

Mental health and the COVID-19 crisis

Data and reporting of mental health in the early weeks of the crisis. Data from UniMelb "Taking the pulse of the nation survey". Collaborating with University of Melbourne. *Peter Butterworth*

COVID-19 Exit strategies

Optimising feasible surveillance for detection, elimination, and ongoing prevention of COVID-19 community transmission. *Kamalini Lokuge; Emily Banks; Stephanie Davis; Leslee Roberts; Tatum Street; Declan O'Donovan; Grazia Caleo; Kathryn Glass*

Reducing morbidity and mortality due to acute febrile illnesses in Central America and the Dominican Republic

Led by Harvard University and in collaboration with many international partners, the study includes COVID-19 serosurveillance of ~7000 participants across Dominican Republic. Serosurvey component led by Colleen Lau. *Colleen Lau; Angela Cadavid Restrepo; Helen Mayfield*

The effects of COVID-19 on social and community functioning

This study explores how participants have experienced and responded to COVID-19, social distancing, and the impacts on work, daily routines, social and community interactions, their health and sense of well-being. *Cathy Banwell; Anna Olsen; Liana Leach; Christine Labond; Alison Calear; Steward Sutherland; Christine Phillips*

COVID-19, racism, and child health article

An opinion piece published in the Medical Journal of Australia discussing the impacts of discrimination/ racism on child health, in the context of COVID-19 and beyond. *Katherine Thurber; Roxanne Jones; Raglan Maddox*

COVID-19 Environmental Transmission Pathways and Interactions with Air Pollution

This literature review and experimental study, testing of air quality monitoring equipment, and drafting experimental protocol. In collaboration with University of Tasmania; International Network on Public Health & Environment Tracking. *Sotiris Vardoulakis; Aparna Lal; Simon Haberle; Benedict Keaney*

Exploring the health care experiences of people living with Multiple Sclerosis and Type 1 Diabetes during the coronavirus (COVID-19) pandemic

In collaboration with The Canberra Hospital. *Jane Desborough; Anne Parkinson; Janet Drew; Karen Brown; Sally Hall; Christian Lueck; Christopher Nolan; Michael Kidd*

Proposal for the development of a more efficient risk assessment tool for Parole and Probation Officers in the Philippines

In collaboration with United Nations Office of Drugs and Crime; The Philippines Probation and Parole Administration; The Philippines Bureau of Jail Management and Penology. *Clarke Jones*

Cohort study of COVID-19 outbreak amongst health workers in North West Tasmania

To gain a better understanding of risk factors of COVID-19 and how the virus spreads in healthcare settings, in collaboration with Tasmania Department of Health, Australian Government Department of Health, COVID-Net, University of Tasmania, Menzies Institute for Medical Research, and the Kirby Institute. *Frances Sheehan, Meru Sheel, Martyn Kirk*

COVID-19 infection and transmission in children

In collaboration QIMR Berghofer Medical Research Institute and University of Queensland. *Darren Gray, Kinley Wangdi, Matthew Kelly, Raine Mationg, Johanna Kurscheid*

COVID-19 epidemiology reports Joint Health Command, Department of Defence

Compilation of epidemiology reports for Joint Health Command of ADF COVID-19 cases. In collaboration with the Department of Defence. *Olivia Williams*

The Australian National COVID-19 Mental Health, Behaviour and Risk Communication Survey

Aiming to improve understanding of the mental health and behavioural impacts of COVID-19 on the Australian community. *Amy Dawel; Michelle Banfield; Phil Batterham; Alison Calear; Nicolas Cherbuin; Lou Farrer; Darren Gray; Amelia Gulliver; Tambri Housen; Sonia McCallum; Alyssa Morse; Kristen Murray; Eryn Newman; Rachael Rodney Harris; Yiyun Shou; Mike Smithson*

COVID-19 preparedness at Canberra Health Services, ACT

Assisting in the establishment of territory-wide syndromic screening of staff, visitors and outpatients at healthcare facilities utilising an electronic collection tool; providing guidance for symptom monitoring in health and aged care workers during the COVID-19 outbreak; and developing a Healthcare worker COVID-19 exposure risk assessment for use in all territory-wide healthcare facilities and shared with the for CDNA endorsement. *Frances Sheehan*

Understanding attitudes towards vaccination in the context of the COVID-19 pandemic

A longitudinal survey on vaccination attitudes and preferences, in collaboration with the University of Leeds. *Professor Emily Lancsar; Associate Professor Kathryn Glass; Ms Madhur Chhabra*

Laboratory finding of the first 1000 cases of reported suspected COVID-19 cases in Lao PDR

A descriptive epidemiological study to inform the Lao PDR Ministry of Health about the extent of the country's testing efforts. In collaboration with the National Centre for Laboratory and Epidemiology, Lao PDR. *Vannida Douangboupaha, Philippa Binns*

The First Few (FFX): Cases and contact investigation protocol for COVID-19 in Lao PDR

Understanding key clinical and epidemiological characteristics of the first cases of COVID-19 to inform the development and updating of public health guidance. In collaboration with the National Centre for Laboratory and Epidemiology, Lao PDR. *Vannida Douangboupaha, Philippa Binns*

Does more liveable mean more COVID-19?

In collaboration with NSW Health. *Nasser Bagheri*

Attack rate of COVID-19 among close contacts of confirmed cases in Myanmar in 2020

Working with the Central Epidemiology Unit, Myanmar, to understand the characteristics of exposure and attack rate in contacts of COVID-19 cases to inform control measures. In collaboration with the Central Epidemiology Unit, Myanmar. *Ei Ei Zar Nyi, Philippa Binns*

Epidemiology of coronavirus disease (COVID-19) in Australia, 2020

Analysis of national data identifies pre-existing comorbidities associated with COVID-19 clinical outcomes among cases in Australia. In collaboration with the Australian Government Department of Health. *Tracy Tsang, Katie Glass*

Notifiable status assessment for coronavirus disease 2019 (COVID-19) and preliminary evaluation of COVID-19 notifications

This body of work resulted in COVID-19 being permanently listed on the National Notifiable Diseases List. In collaboration with Australian Government Department of Health. *Tracy Tsang, Ross Andrews*

Analysis of the impact of cruise ships on the 1st wave of COVID-19 in South Australia

Investigating the contribution of cruise ships on the number of cases and burden of COVID-19 in South Australia. In collaboration with the South Australian Department of Health. *Alvaro Berg Soto, Ben Polkinghorne, Ben O'Neill*

COVID-19 State response and research to facilitate the response

Assistance with epidemiological investigation of outbreaks at the Victorian DHHS. Additionally, launching the Optimising Isolation, Quarantine and Distancing for COVID-19 study at the Burnet Institute. Also contributing to CRISPER, a Real-time Information System for Preparedness and Epidemic Response through design input and data simulations. In collaboration with The Macfarlane Burnett Institute for Medical Research and Public Health Ltd. *Stephanie Curtis, Colleen Lau*

Submission to the taskforce of the Go8 'COVID-19 Roadmap to Recovery - Report for the Nation

Luis Salvador-Carulla

Establishing the First Few X (FFX) project for COVID-19, Australia 2020

Evaluation of the adaptation and development of the World Health Organization (WHO) First Few "X" Household transmission project for the 2019-novel coronavirus infection protocol in Australia. *Genevieve O'Neill, Christina Bareja, Ben Polkinghorne*

COVID-19 preparedness in remote Solomon Islands

Developed contact tracing training for use within a remote region of the Solomon Islands in collaboration with Hunter New England Health Protection. *Stephanie Wheeler*

NSW COVID-19 Schools Study, National Centre for Immunisation Research and Surveillance

Data collection and analysis for the NSW COVID-19 schools transmission study to detect and characterise secondary transmission of SARS-CoV-2 in NSW schools and early childhood education settings. *Noni Winkler, Stephen Lambert*

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Data collection and analysis for the NSW COVID-19 schools transmission study to detect and characterise secondary transmission of SARS-CoV-2 in NSW schools and early childhood education settings. *Noni Winkler, Stephen Lambert*

Epidemiology of Western Australia's first 600 COVID-19 cases

This descriptive analysis describes Western Australia's first 600 cases of COVID-19; specifically their close contacts, resulting secondary cases and outbreaks. In collaboration with WA Department of Health. *Hannah Vogt, Aparna Lal*

Investigation into potential in-flight transmission of COVID-19 on international flights into Perth, Western Australia

Public health investigation into potential COVID-19 transmission on an international flight into Perth using laboratory data, passenger information and plane details to determine specific risks and protective factors for future travel. *Sera Ngeh*

Rapid review on screening and treatment of COVID in the Pacific

In collaboration with DFAT. *Mahomed Patel*

Wellbeing during COVID-19 video and resources

Resources include a video, an article on mindfulness and colouring in for ANU Alumni. These resources help provide information to the public on how to maintain wellbeing during COVID-19. *Jo Lane; Tobias James; Erin Walsh; Ginny Sargent*

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Extensive media engagement

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Webinar - In Conversation with Dr Liana Leach: Working from Home with Caring Responsibilities

For pandemic control, housing is the best medicine. Published article in Croakey in collaboration with scholars from Monash University and University of Sydney. *Liana Leach; Jason Agostino; Katherine Thurber*

For pandemic control, housing is the best medicine

Published article in Croakey in collaboration with scholars from Monash University and University of Sydney. *Jason Agostino; Katherine Thurber*

Calling young adults: why staying physically apart is so important, while connecting socially

Published article in Croakey in collaboration with scholars from University of Sydney and Burnet Institute. *Meru Sheel; Alyson Wright*

Will the modelling tell us if we are getting the fight against COVID-19 right? Probably not

Opinion piece in the Sydney Morning Herald. *Mahomed Patel*

Extensive media engagement

Significant contribution to raise awareness of the impact of lockdown and the threat of COVID-19 on Indigenous communities, particularly on Indigenous people who are isolated and live in overcrowded communities. *Jason Agostino*

Global impact of COVID-19 on Mental Health webinar series

This webinar series was curated and presented to increase the awareness of Global impact of COVID-19 on Mental Health in collaboration with ConNetica Consulting. *Luis Salvador-Carulla; Sebastian Rosenberg; Marita Linkson*

Aboriginal leadership in Central Australia in response to COVID-19 pandemic

Opinion piece in The Advocate & NT News. *Alyson Wright*

Feeling good at home during COVID-19

Collating evidence on ways people can protect their mental health and wellbeing and communicate that to the public in a positive way. *Ginny Sargent; Tobias James; Liz Drummond; Alice Wetherell; Jo Lane; Alison Calear; Darren Gray; Bruce Christensen; Eryn Newman; Susan Helyar; Sarah Walker*

Can coronavirus spread 4 metres?

Article published in The Conversation. *Meru Sheel; Charlee Law; Danielle Ingle*

Protecting Aboriginal and Torres Strait Islander communities from COVID-19

Presentation and advice to the National Aboriginal and Torres Strait Islander Advisory Group on COVID-19 on critical control points and enhances surveillance. *Lisa Whop; Kamalini Lokuge*



Photo by Gustavo Fring from Pexels

PHXchange: Building on research excellence

The PHXchange is a strategic hub linking the best minds in population health research to our communities, partners, policymakers, and researchers to achieve better health outcomes, reduce health inequity, and respond proactively to solve new and emerging health threats.

A key component of the PHXchange mandate is to communicate about health in ways that increase connectedness within and between communities, making population health ideas and evidence accessible to the broadest possible audience as well as support best-practice policy. The Combatting COVID-19 publication forms part of that commitment.

What else does the PHXchange do?

- Facilitates partnerships and capacity building in health
- Promotes evidence-informed policy
- Develops implementation frameworks
- Participates in primary research
- Creates evidence visualisations for impact
- Builds Impact and engagement skills
- Communicates for everyone's health

Are you a researcher, policymaker, business, government or NGO and want to learn more about population health, or partner with us to create solutions to real-world health problems? The PHXchange at the Research School of Population Health can help.

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Contact us

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