



THE UNIVERSITY OF
MELBOURNE

The University of Melbourne
Department of General Practice
and Primary Care

Our Research, Our Health, Our Future

Our Research, Our Health, Our Future

Department of General Practice and Primary Care
Melbourne Medical School
Faculty of Medicine, Dentistry and Health Sciences
The University of Melbourne

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Forewords

SUPPORTING PERSON-CENTRED CARE THROUGH EDUCATION AND RESEARCH

The 'Our Research, Our Health, Our Future' report highlights the work of The Department of General Practice at The University of Melbourne in establishing and facilitating high quality primary care research and medical education. Research and education drive continued improvements in clinical practice, which in turn contributes to a healthier population.

As the first port of call for the health care needs of their local communities, general practitioners (GPs) and their teams, including practice nurses, are tasked with recognising, treating and managing an extensive range of health conditions relating to the mental, physical, emotional, social, cultural and environmental aspects of our being. GPs need to be experts in providing assessment, monitoring, management, and support and reassurance. To achieve integrated person-centred care, GPs need to be connected to other parts of the health care system as well as other sectors such as social care, education and public health.

The diverse presentations in primary care are represented in this report by the variety of primary care research and teaching programs in the Department. We highlight their impact in improving the health and wellbeing of the Australian population and efficiency of our health systems. These efforts have been made possible by the Department's partnership with many general practices across Victoria and in other states through the Victorian Research and Education Network (VicREN) as well as with established networks of consumers for co-design and setting research and education priorities. The Department also collaborates with Primary Health Networks, Community Health, Hospitals, Research Institutes, Industry and other University departments to advance human health and health care.

The COVID-19 challenges to our health care system have spurred advances within general practice settings, such as the adoption of telehealth and the increased uptake of technological platforms for clinical education and multi-disciplinary care. The use of de-identified medical record data for research into whether our health care innovations and pathways are efficient and effective also advances and optimises patient care. The Department has established the Patron secure data repository with general practices from VicREN and the Health and Bioinformatics Team to quantify the work of primary care and enable testing of digital innovations. The use of data stored in Patron is under the strict vigilance of an Independent Data Governance Group and underpinned by ethical and legal frameworks and internationally established frameworks for data security.

We encourage you to read on to see the many exciting contributions underway within the Department of General Practice that will lead to improving primary care in Australia and beyond.



Professor Jane Gunn
Dean
Faculty of Medicine, Dentistry and Health Sciences
and



Professor John Prins
Head of School
Melbourne Medical School

REFLECTIONS FROM A GENERAL PRACTICE PATIENT

There are two common concerns for most patients in dealing with the Australian Health 'System'. The first concern is a feeling of powerlessness. The second concern is a lack of continuity in the provision of health care.

Good general practice doctors and nurses help to reduce the sense of powerlessness through the provision of understandable information and empathetic treatment. Those same GPs and practice nurses provide continuity by being familiar faces, and knowing us as individuals, rather than 'the colonoscopy in bed 3'.

Having spent my first 60+ years seeing a doctor rarely, usually only once a year, I used to have difficulty in naming 'your usual GP' when asked.

It is only in the last few years that, being able not only to nominate him, but call him by his first name, makes me feel far more secure in confiding in him, and confident in his quiet, measured judgement.

My GP reminds me to get vaccinated, reminds me to get the necessary tests done, counsels me, and is my first point of contact. I trust him and his practice colleagues.

I consider that, alongside patient outcome analysis, general practice research is essential to improve early diagnosis, and thus, earlier treatment of many conditions. It is also essential to equip GPs in smaller or remote practices with information and methodologies to help them maintain quality of service.

I have been pleased to have participated in a number of research programs focussed on the use of algorithmic analysis of patient data to help identify those 'at risk', and support hardworking GPs to support their patients. This combination of good patient data and advanced information technology is, I believe, going to become far more prevalent in the future, as both the algorithms, and data quality, improve.



Ian Dennis
General Practice Patient

Introduction

THE AUSTRALIAN PRIMARY CARE SYSTEM

Our primary care system is the foundation of Australia's health system. Our General Practitioners (GPs) and primary care nurses see the most patients, the most frequently and support them throughout their entire life journey. They provide care for patients in the most remote rural communities through to our busy cities. They encounter every medical presentation imaginable: newborn baby checks; acute injuries and illnesses; chronic disease such as diabetes; preventative care; mental health and psychological support; emergencies such as anaphylaxis and heart attacks, and countless more. They work at primary care clinics, sexual health services, emergency departments, refugee health services, research institutes, health departments, public health organisations, nursing homes, Aboriginal Community Controlled Health Organisations (ACCHOs), skin clinics and mobile health services serving people experiencing homelessness (amongst others). No matter where they work or what the issue is, the person is always at the centre of care.

THE PURPOSE OF THIS REPORT

The Department of General Practice and Primary Care works passionately to conduct and promote primary care-based research and medical education in Australia. This report is a celebration not only of the tireless work of current and former staff and students at the Department, but also of the general practices and others who strive to strengthen our primary care system by partnering on robust research and outstanding medical education. The Department of General Practice and Primary Care is indebted to the thousands of general practitioners, nurses, practices managers, allied health staff and patients who have contributed their time and expertise to research and medical education programs. We also thank our collaborators from other Departments within the University of Melbourne, as well as numerous Universities, Research Institutes, Hospitals and organisations from around Australia and the world for working with us to enhance primary care in Australia.

Our work to strengthen the state of primary care-based research and medical education in Australia is critical. Despite the core role of primary care in Australia's health system, which has been further evidenced during the COVID-19 pandemic, the majority of clinical research and medical education in Australia has been hospital-focussed. However, the unique nature of working in general practice means that hospital-based research does not always translate directly to community-based clinical practice. We, along with our collaborators and research participants, are working to change this. This Report outlines the critical research and medical education activities conducted by our Department and how these directly translate to improving clinical practice in primary care and, ultimately, the health of our nation. Due to the vast scale of primary care in Australia, investing in primary-care focussed research, led by or involving primary care scholars and organisations who understand the unique and diverse working environment of GPs, will yield enormous economic, social and health benefits for our population.



Professor Lena Sanci
Head of Department
Department of General Practice and Primary Care

THE DEPARTMENT OF GENERAL PRACTICE AND PRIMARY CARE

The Department of General Practice and Primary Care originated as a unit within the Department of Community Medicine in 1977 and was established as a separate department within the School of Medicine in 2001. With 87 (full time equivalent) staff supported by an operating budget of \$7 million and research income of approximately \$11 million annually the Department has grown to become one of the largest and most successful primary care research and medical education centres in Australia.

Primary care research

Our team of multidisciplinary researchers have specialised expertise in a range of subject areas and research methodologies and are supported by a network of researchers within Faculties across the University. Each of our research teams are led by world-renowned primary care academics who are passionate about their work. This breadth of expertise translates to our ability to conduct large scale, innovative and world-class primary care research focussing on a huge variety of topics.

Publications: In the last three years we have had 354 publications, including 264 (75%) in international journals, 76 (21%) in journals with impact factor above 5 and 12 in journals with impact factor 20 or above.

Clinical Trials: Since 2005 our specialised Primary Care Trials Unit has led over 25 randomised controlled trials (RCTs); 56% of these trials have been funded in the last 5 years. Over 370 general practices and more than 24,000 participants were involved.

Awards: In the last five years the Department academic staff have had 17 awards for research and contributions of research to the profession of general practice.

Medical Education

The Department of General Practice and Primary Care conducts a vast range of medical education programs. We run one of the largest general practice placements in Australia for The University of Melbourne's Doctor of Medicine students. Our department places almost 1000 students annually in almost 300 general practices throughout urban and rural Victoria and sometimes beyond. Students spend time in general practice in each year of their four-year post-graduate medical course, including a longitudinal placement in first year and a six week placement in third year. A dozen each year undertake their research project with our department, and many achieve a publication from this work and present their research findings at conferences.

We deliver postgraduate training for primary care nurses, and research training for medical, Honours, masters and PhD students. For more than 20 years, the Department has run a very successful General Practice academic registrar program where doctors who are training to be GPs undertake a half time special skills post in academic medicine to experience an introduction to research and university teaching.

Our networks

The research and medical education activities at the Department are supported by our extensive networks.

VicREN: VicREN is our practice-based research and education network which connects us directly to around 600 general practice clinics around Victoria who contribute to teaching and research at the Department. Our relationships with other practice-based research networks around Australia extends this reach nationally. Through VicREN and our relationship with other practice-based networks we can facilitate large scale recruitment of clinicians and patients for research and clinical trials around Australia.

National and international collaboration: We have a long history of hosting visiting clinical and non-clinical primary care academics and other researchers and regularly collaborate with universities and organisations from around Australia and the world.

Alumni: We remain in close contact with our extensive and highly successful alumni network who work in a variety of fields and provide invaluable support to our research.

PRIMARY CARE DATA AND TECHNOLOGICAL INNOVATION

A core element to our research capability is the use of innovative technologies which facilitate a range of novel research projects.

Health and Biomedical Informatics Centre, Research Information Technology Unit (HaBIC R²):

Our Data and Technical team is the largest in Australian academic general practice, comprising 20 technical and academic specialists. The HaBIC R² team have a broad range of technical capabilities, including the development of software and applications, health communication integration platforms, general practice quality improvement programs, decision support tools and safety monitoring programs. HaBIC R² are integral to some of our most ground-breaking research, such as our multifaceted digital intervention to improve chronic disease management in primary care known as Future Health Today.

Data for Decisions: Our Data for Decisions program is a community of general practices who have entered into an agreement to share their de-identified electronic medical record (EMR) data with the Department of General Practice for use in research. EMR data is de-identified before it leaves each clinic and is stored securely in our Patron data repository. Patron is subject to a strict governance framework overseen by an Independent Data Governance Committee (IDGC) made up of members of the public, GPs, practice managers, researchers and a lawyer. The IDGC ensures, on behalf of data providers, that every application to work with Patron data follows the most rigorous data safety protocols and complies with the ultimate aim of improving general practice for patients. We now have 129 practices who have contributed de-identified EMR data for almost 2 million patients.

Patron and our research: The use of de-identified patient data in our Patron data repository is revolutionising primary care research. Our researchers can now access clinical information such as patient medical history, prescriptions, pathology and radiology results and reasons for consultations. This enables us to answer a huge range of research questions and create digital solutions that simply are not possible without access to large amounts of de-identified patient EMR data. Throughout this Report we have utilised the power of our Patron database to provide important clinical insights into the state of primary care in Australia.

Impact of COVID-19 on Primary Care

Since the first case of COVID-19 appeared on our shores on 19 January 2020, the COVID-19 pandemic has profoundly impacted primary care in Australia. By analysing de-identified patient data from our Patron database in 2019 and 2020, we have been able to demonstrate just how significant the effect of COVID-19 has been on core elements of primary care.



Research lead
Associate Professor Jo-Anne Manski-Nankervis
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Impact of COVID-19 on Primary Care

PRIMARY CARE ATTENDANCES

Whilst the total number of primary care attendances¹ were largely unchanged (0.4% decrease) between 2019 and 2020, when the age groups are broken down it becomes clear that there was a demographic shift in patient presentations to the older population. Attendances by the paediatric population (age 0-17) decreased by 20%, whilst attendances by those aged 35 and over increased by on average 4%.

COMMON PRESENTATIONS

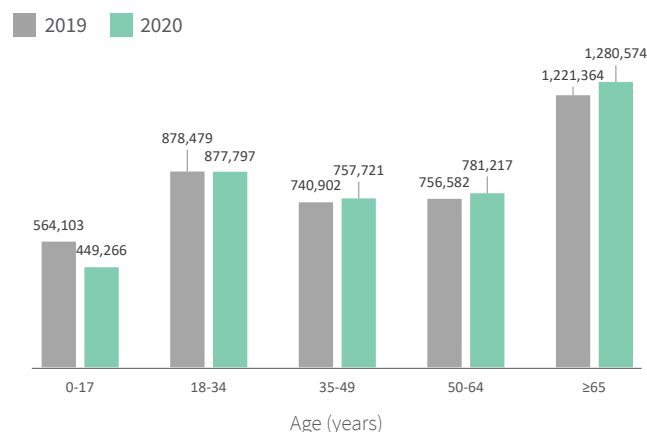
Between 2019 and 2020 there was, at times, a dramatic impact on common GP presentations. Presentations for upper respiratory tract infections (URTIs) decreased by almost 50%, whilst presentations for anxiety increased by 28%. Presentations for diabetes, wound care and hypertension remained relatively stable. The number of patients who had at least one immunisation recorded increased in the 18-64 and ≥65 year age groups, but slightly decreased in the 0-17 year age groups (51365 to 49265 immunisations). The proportion of children attending general practice who received an immunisation increased from 35.4% in 2019 to 40.5% in 2020.

TELEHEALTH

The introduction of new MBS item numbers for GP telehealth and GP telephone consultations in 2020 impacted how primary care was delivered in Australia. In-person GP consultations in GP surgeries dropped by 703,288 (29.3%) between 2019 and 2020, however were balanced by 931,663 telehealth/telephone consultations, 97% of which were delivered by telephone.

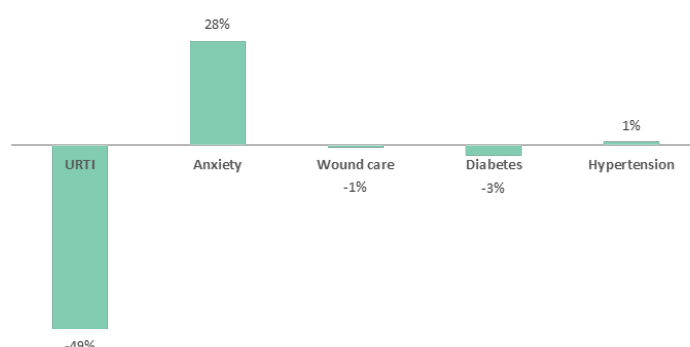
Primary care attendance by age

number of patient attendances



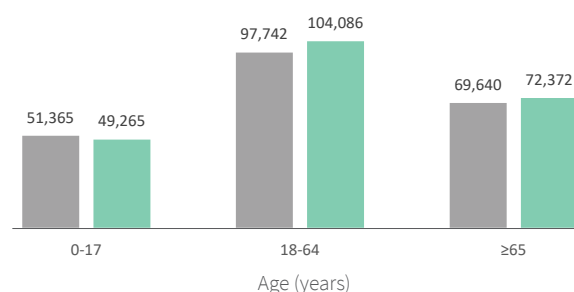
Impact of COVID-19 on common GP presentations (all age groups)

percentage change between 2019 and 2020



Number of patients with at least one recorded immunisation

2019 2020



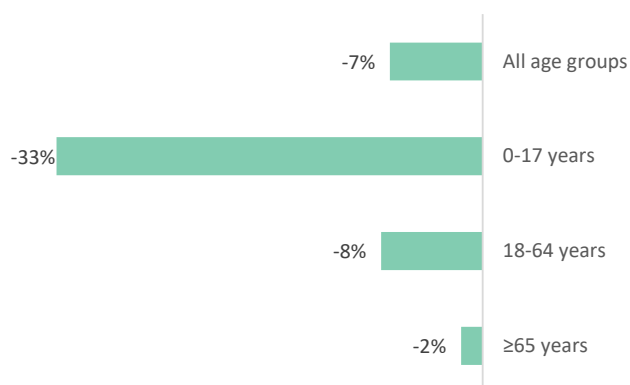
¹ Includes all forms of primary care attendance, including surgery, telehealth, telephone, home visits, nursing home visits, practice nurse attendances and other

PRESCRIPTIONS

There was a significant reduction in the number of prescriptions written across all age groups in 2020 compared to 2019 (7.2% decline), with the largest decline in the paediatric population (33% decline; ages 0 to less than 18 years).

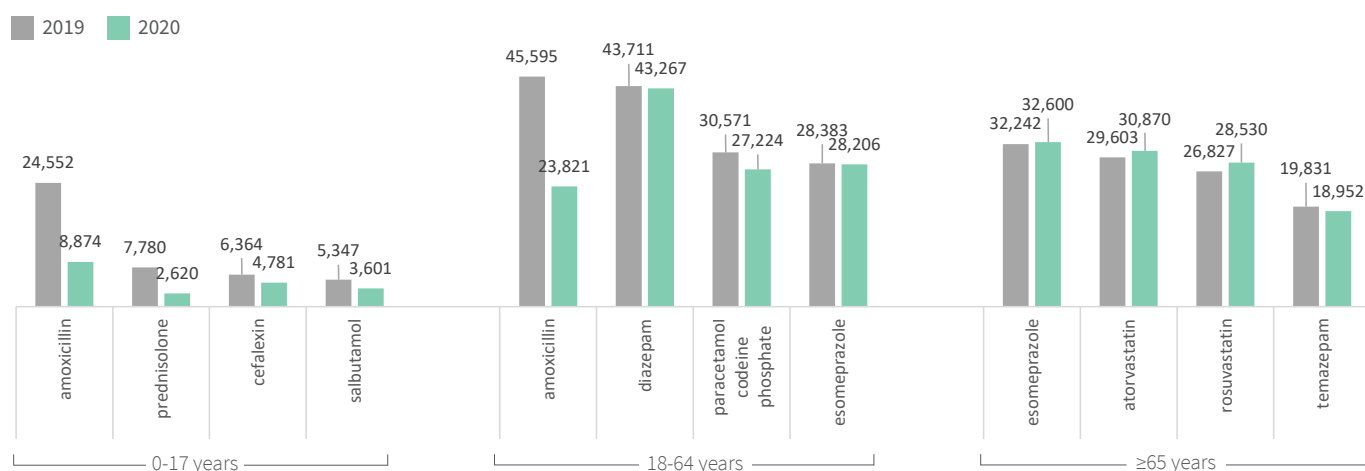
We examined the change in the four most commonly prescribed medications between 2019 and 2020. Overall, there was a decrease in prescriptions for medications typically prescribed in the setting of acute infections (amoxicillin, prednisolone, cefalexin) and asthma (salbutamol) in the 0-18 and 19-64 age group. Prescriptions for common medications not typically associated with acute infections were relatively stable.

Change in prescriptions between 2019 and 2020



Number of prescriptions for four most frequently prescribed medicines in 2019 compared to 2020

medicines by age group

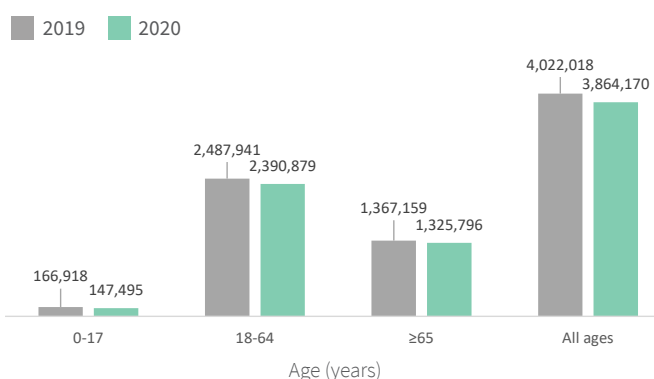


INVESTIGATIONS

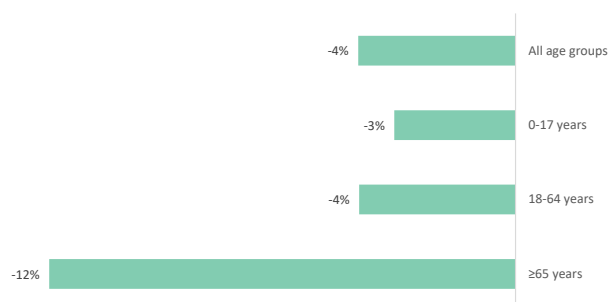
Between 2019 and 2020 there was an overall decrease of 4% across all age groups in investigations² ordered in primary care. The largest percentage decrease was in the ≥ 65 population, with an 11.6% decline in investigations ordered.

In 2020 there was a decrease in each of the seven most frequently ordered investigations compared to 2010. The largest decreases were general biochemistry (9%), general haematology (8%), urine microscopy, culture and sensitivities (8%) and C-reactive protein (7%) pathology orders. There were no radiology tests in the top 7 more frequently ordered investigations.

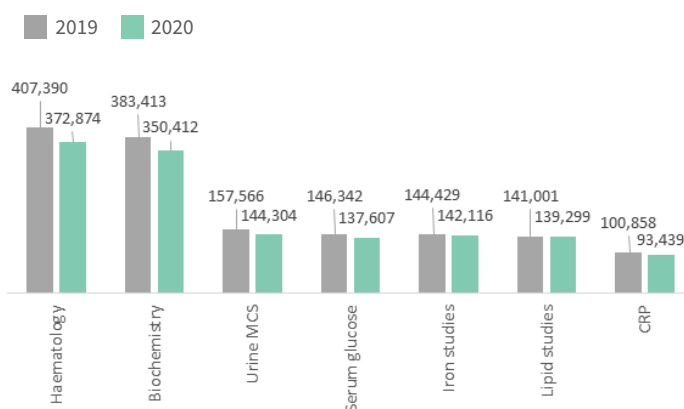
Number of investigations ordered



Change in investigations ordered between 2019 and 2020 percentage change in number of investigations



Common investigations (all age groups) number of investigations ordered

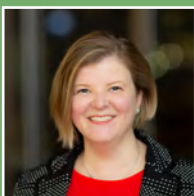


² Investigations included both pathology tests (not atomised) and radiology tests ordered in primary care

COVID-19

The COVID-19 pandemic has had an unprecedented impact on health systems across the world and changed the face of general practice in Australia as we know it. General practices rapidly adapted to a new and challenging work environment. General practices transitioned to telehealth and COVID-safe working environments, established COVID-19 respiratory clinics and answered the call to assist in the nationwide roll-out of COVID-19 vaccinations. This allowed patients to continue to be treated by their trusted long term health practitioners whilst taking a significant burden off the wider health system.

During this challenging period the Department of General Practice and Primary Care is proud to have been able to provide innovative and critical research to support general practices in their response to COVID-19 pandemic.



Research lead
Associate Professor Jo-Anne Manski-Nankervis
[View profile](#)

COVID-19

COVID-19 RESPIRATORY CLINIC STUDY

In 2020 GP-led respiratory clinics were commissioned by the Australian Government to help reduce the load on hospitals and general practices of assessing suspected COVID-19 cases. A team of multidisciplinary researchers from our Department undertook one of the first independent evaluations of this new model of care through our review of the Altona North Medical Group (ANMG) respiratory clinic and Drive Through COVID-19 Testing Clinic (DTTC). Our review focussed on core areas critical for guiding ongoing implementation of such clinics: safety, acceptability and economic sustainability.

The ANMG respiratory clinic, located in Melbourne's west, operates across three sites:

1. an offsite carpark where patients are triaged over the phone;
2. an onsite carpark for drive through COVID-19 testing; and
3. consultation rooms for patient examinations, with associated administration facilities.

Between 13 April 2020 and 8 February 2021 the ANMG conducted:

9,752 COVID-19 tests through its DTTC

3,633 GP consultations in the respiratory clinic

Safety

During the height of the Melbourne's "second wave" of COVID-19 in July 2020, our team of researchers with expertise in infection control, nursing, microbiology and occupational health and safety observed, in person, the running of the ANMG respiratory clinic and DTTC. We were tasked with identifying infection control, occupational health and safety and staff mental health risks in real-time, and assessing risk mitigation measures in place.

We found that ANMG had instituted a range of novel and effective risk mitigation strategies for both the public and staff at ANMG which were dynamically evolving as case numbers developed and guidelines changed.

RISK	MITIGATION STRATEGIES	OPTIMISATION
COVID-19 transmission from direct patient contact	PPE available above standards required by guidelines at the time	Regular infection control training for staff
	Off-site patient phone triage	'Buddy' system for peer review of PPE use
COVID-19 transmission from surface contamination	Novel use of scribes located outside examination rooms for recording patient notes	Scribe notes were reviewed and assessed for quality and found to be acceptable
	Regular cleaning of consult rooms	
COVID-19 transmission between staff	Physical distancing, mask use, regular cleaning and airflow maintenance	Remove items difficult to decontaminate or disinfect
Staff mental health and wellbeing	Access to appropriate PPE Onsite security personnel Regular team debriefing and psychology services offered	Continue current practice

Risk mitigation strategies

Acceptability

Acceptability of the ANMG respiratory clinic and DTTC was assessed through a series of surveys and interviews with patients and staff. Overall, our evaluation found that the ANMG respiratory clinic and DTTC was an adaptive model which provides safe and acceptable care to members of the community requiring medical assessment and testing for COVID-19.

Economic evaluation

Prior to our economic evaluation very little was known about the cost and financial viability of GP-led respiratory clinics. We analysed the costs associated with setting up and running the ANMG respiratory clinic and DTTC between April and June 2020. Significant variability in demand for services, as set out in the graph *Demand for Services*, impacted greatly on the cost-per-patient due to the fixed costs associated with the running of the clinic.

Our economic evaluation demonstrated that financial viability is a significant challenge for running a GP-led respiratory and DTTC. These findings can help guide resource allocation for GP-led respiratory and DTTC, and demonstrate the need to consider the impact of changing demand for testing.

Staff acceptability of AMNG respiratory clinic and DTTC

Significant stress amongst staff was associated with transitioning to the new work environment.

Staff felt well supported by PPE availability, regular staff meetings and debriefings, and the availability of psychologist support.

Patient acceptability of AMNG respiratory clinic and DTTC

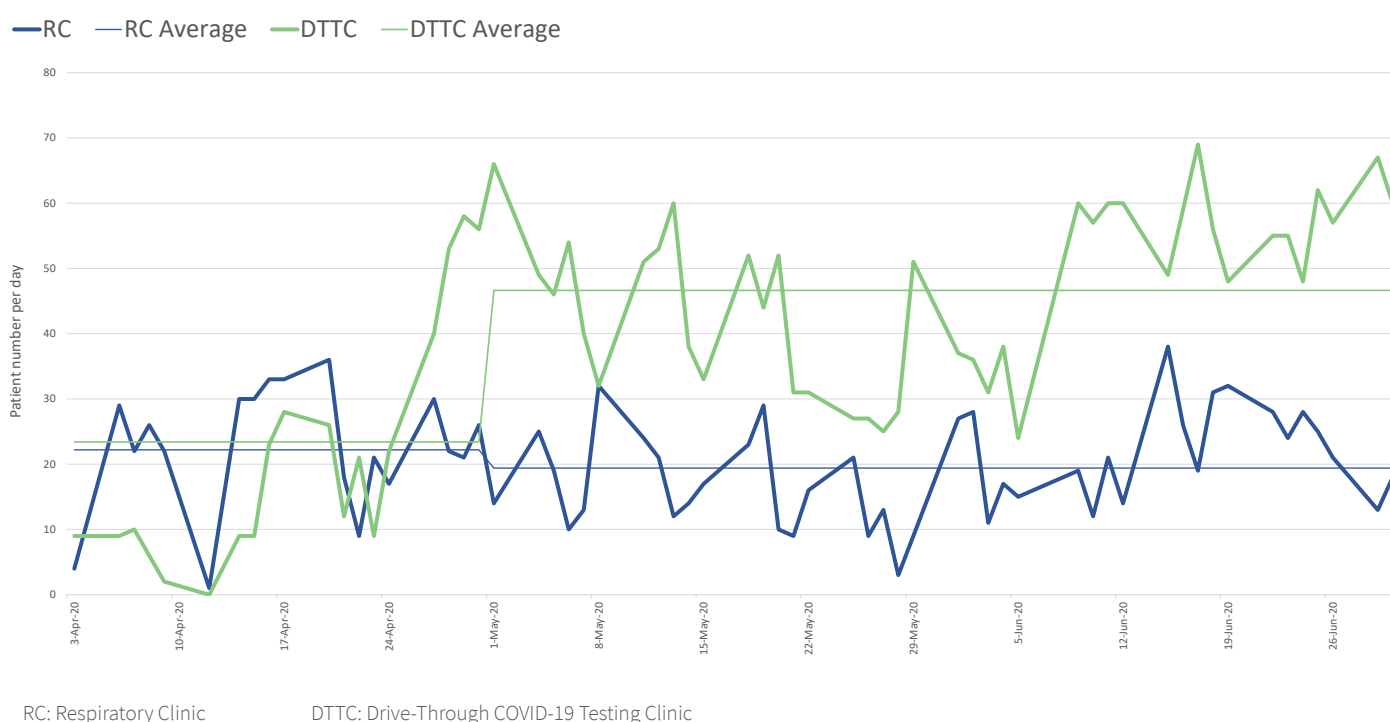
88% were satisfied or very satisfied with the ANMG respiratory clinic.

Communication, infection control, safety, organisation, professionalism and the care received were key positive factors.

Areas to improve included clearer directions to the respiratory clinic and reduced waiting times.

Demand for services

patient number per day



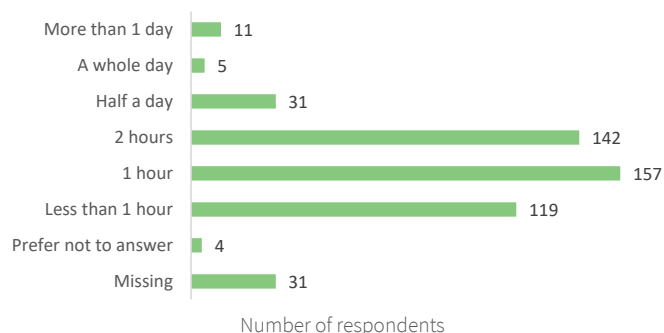
TELEHEALTH EVALUATION

The rapid transition to telehealth consultations during the COVID-19 pandemic has revolutionised the delivery of care by general practitioners in Australia. In collaboration with the North Western Melbourne Primary Health Network and the South Eastern Melbourne Primary Health Network we surveyed 499 people who had undertaken a telehealth consultation with a GP, allied health professional or other health care provider to understand how people experienced this fundamental change to care delivery. Our findings indicate that people have warmly welcomed the addition of telehealth as a form of care delivery.

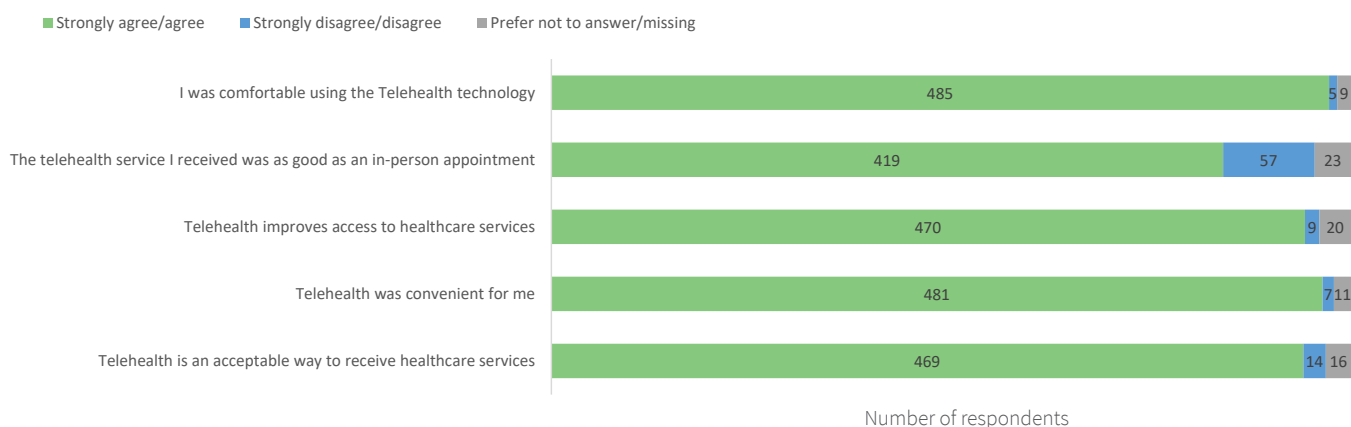
People also identified that telehealth consultations saved a significant amount of time, especially if long distance travel was required to reach their health professional in person. This could reduce transportation costs and free-up time which could then be used in more productive ways.

Patient time saved through telehealth versus in person appointment

What is the estimated time you have saved by attending via telehealth compared to in-person?



Telehealth - patient survey



VicREN and the Primary Care Trials Unit

VicREN and the Primary Care Trials Unit are specialised units with the Department of General Practice and Primary Care with extensive expertise and experience in supporting primary care- based research, including conducting clinical trials in primary care.



VicREN lead
Professor Lena Sancu
[View profile](#)



Trials Unit lead
Professor Jon Emery
[View profile](#)

VicREN and the Primary Care Trials Unit

VicREN

VicREN is a practice-based research and education network which connects the Department of General Practice and Primary Care to around 600 primary care practices around Victoria. We also have relationships with other practice-based research networks nationally to enable larger and nationally inclusive collaborative trials.

By connecting our research and education expertise at the Department of General Practice and Primary Care directly with primary care practices around Victoria, VicREN promotes research and education designed with, and undertaken within, the primary care environment, ensuring feasibility and appropriateness for primary care.

Recruitment

Through VicREN the Department of General Practice and Primary Care can connect with thousands of primary care staff and patients to facilitate recruitment for large scale primary care research programs. With over a decade of experience in recruiting clinicians and practice staff, general practices, and patients for research in primary care settings, we ensure our activities are specifically designed and streamlined for general practice. Recruitment activities include tailoring research study information for the general practice audience, engaging with and visiting practices, presenting the research and gaining their consent to participate.

Implementing research

Our experience and expertise in implementation of primary care research programs ensure that engaging in research through VicREN will not compromise or interrupt clinical care for participating practices. Our wide network of metro, rural, and remote primary care practices allows translation of research findings into clinical practice in a variety of settings to improve patient health outcomes.

Member collaboration

We actively collaborate with our members, allowing primary care providers with an interest in research to engage directly with our own researchers or our research collaborators. VicREN members include GPs, practice nurses, practice managers and other healthcare providers working in general practice or community health care settings. VicREN members are provided with opportunities to learn more about research and contribute to research projects that make a difference to practice, public health, and policy. In addition, community members are encouraged to join our Advisory group to provide advice to academics on developing research and education activities important to them and practical to implement.

Research collaboration

Together with our Primary Care Trials Unit we collaborate with researchers intending to undertake research or clinical trials in the primary care setting. Our expertise includes designing study methodology appropriate for the unique environment of general practice.

Promoting primary care research

An important aspect of VicREN's activities is to promote primary care research. We are passionate about the role of primary care research in improving the health of our nation and work to promote primary care related research through the distribution and promotion in regular e-bulletins and notices to GPs, practice managers, practice nurses and broader primary care organisations.

Education

The Department of General Practice and Primary Care is committed to enhancing general practice through excellent education that engages with the community and the wider health care system. We place nearly 1000 medical students in committed general practices for training every year. Students can experience general practice in each year of the four-year postgraduate Doctor of Medicine Course. Many practices that supervise medical students (teaching and learning practices) are also involved in research, that is why VicREN combines research and education in the one network.

Further information on VicREN, including membership information, is available at <https://medicine.unimelb.edu.au/school-structure/general-practice/engagement/primary-care-community/research/vicren>

PRIMARY CARE TRIALS UNIT

Our Primary Care Trials Unit supports the development, conduct and analysis of high-quality trials and other studies in primary health care and health services with a wide range of collaborators. Our focus is on health services research and implementation science using primary care innovation, clinical data analytics and linkage, and co-design with consumers and practitioners. We are experts in research, co-design and implementation in the complex, multidisciplinary primary care environment.

Since 2005, we have led over 25 randomised controlled trials (RCTs) with over half of these funded in the last five years. Over 370 general practices and more than 24,000 participants were randomised across the 25 randomised controlled trials.

We have expertise in the design and analysis of pragmatic trials in the primary care setting, particularly multi-site trials, cluster randomised trials, and stepped wedge designs. In addition, we develop and conduct process and outcome evaluations. These determine whether the intervention has been implemented as intended. Qualitative studies are often used for this because they offer contextualised insights into the trial. We also house the expertise in co-design available through the [Methods, Implementation and Support for Clinical and Health Services research \(MISCH\) Hub](#).

Further information on the Primary Care Trials Unit, including further information about the services offered, is available at <https://medicine.unimelb.edu.au/school-structure/general-practice/research/pc-clinical-trials-unit>

HaBIC R² Health Technology Innovation

HaBIC R² brings technology expertise and innovation to research and health projects, delivering information and technical solutions to drive change and innovation that keep people and privacy at the centre. We collaborate with stakeholders across health, research and government sectors to provide our technological health research solutions.

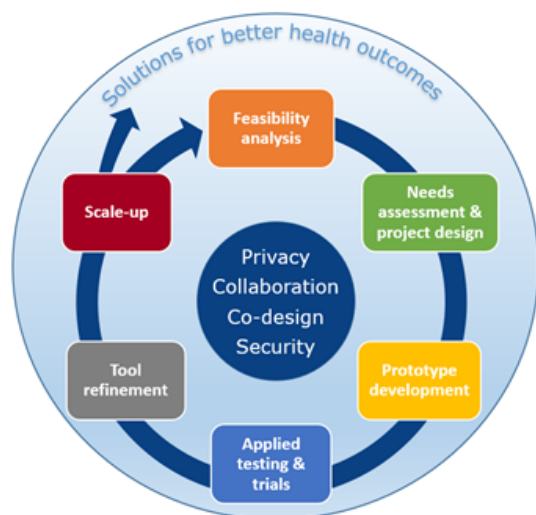


Research lead
Professor Dougie Boyle
[View profile](#)

HaBIC R² Health Technology Innovation

OUR MISSION

The HaBIC R² mission is to create innovative technologies to support research objectives and enable the effective translation of health research into impact. Our team of 20 technical and academic specialists, which includes business analysts, software developers, data engineers and researchers, is the largest of its type in Australian academic general practice and has been working with Australian general practices since 2007. Our work throughout the health research sector, from diabetes to domestic violence and Aboriginal medical research, has led to us being recognised as a 'safe pair of hands' for privacy-protecting, technical health research solutions.



HaBIC R² Health - Technology - Innovation

OUR CAPABILITIES

Our work is collaborative, working with university, government, healthcare provider, industry and commercial partners to identify and deliver practical capabilities, including:

Software and app development: For example, TorchRecruit® trial recruiting software for clinical trials delivers cost savings through accelerated patient recruitment in clinical trials by applying algorithms (developed with industry partners) to patient clinical records to identify targeted eligible patient populations.

Health communication integration platforms: For example, iCHAMP (Connecting Health Across Multiple Platforms) that will provide web and app developers with a capability to communicate with healthcare providers and their electronic medical records (EMRs)/Design Support tools via Fast Healthcare Interoperability Resources (FHIR) and secure messaging with consent and security mechanisms. GP's will 'prescribe' an app as an intervention and have access to patient-generated app data to track progress and respond to critical health warnings.

General practice quality improvement and decision support tools: For example, Future Health Today (FHT), developed in collaboration with Western Health and partnered with the Paul Ramsay Foundation. FHT supports the sophisticated triage of at-risk patient populations, with embedded practice quality improvement tools and delivery of real-time decision support during GP consultations. The formal randomised trial phase was completed in 2022.

Safety monitoring: For example, the development of clinical indicator algorithms for a new Future Health Today module designed to reduce medication related problems. The actionable point of care dashboard integrated into quality improvement and decision support software will enable the pharmacy workforce to work with GPs to reduce risk of harm and costs to the health care system.

Data Acquisition – using our GRHANITE® software: For ethical, privacy-preserving data sharing from clinical and administrative datasets. GRHANITE incorporates high-level ethical, privacy and security functions to facilitate the transfer of deidentified data to secure researcher destinations, and underpins the success of many research, quality, surveillance and audit projects by decreasing the burden of data collection for the evaluation of clinical and implementations trials.

Data linkage solutions: For example, enabling researchers and policy-makers to examine de-identified patients' journeys across multiple datasets and thereby through broader components of the health system. This occurs via GRHANITE's privacy-protecting record-linkage capability, and partnering with organisations such as BIOGRID.

International Common Data Model: For example, collaborating with the Victorian Comprehensive Cancer Centre and national hospitals to undertake the conversion of data into the international Observational Medical Outcomes Partnership (OMOP) common data model format, facilitating more efficient execution of research projects utilising OMOP's open source dashboards and ATLAS tools. Our experience with common data modelling extends to the conversion of our own Patron primary care data repository (140+ general practices, 2 million patients) across to OMOP thereby enabling researchers to more readily perform international comparisons of clinical datasets and testing of hypotheses.

Data governance, legal and ethics frameworks: For example, the process developed for the Department of General Practice's own Data for Decisions research initiative. These procedures include incorporation of an independent Data Governance Committee and partnerships with 140+ general practices to create and ethically manage the Patron primary care data repository.

Epidemiological research enablers and surveillance mechanisms:

Data held in the Patron primary care data repository is frequently accessed by approved applicants for epidemiological studies as part of the Department of General Practice and Primary Care's Data for Decisions research initiative. We also have a track record of enabling population health disease surveillance using GRHANITE®, for example, our sentinel surveillance system for sexually transmitted infections and blood borne viruses for the ATLAS project.

At HaBIC R², in addition to our technical and data capabilities, we have long been involved in research and strategic initiatives to improve data quality. Our group director, Prof Boyle is the Technical Strategy Director for the Centre for Digital Transformation of Health and leads the Australian Health Research Alliance (AHRA) Transformational Data Collaboration, which works nationally to develop data quality assessment standards, medical terminology representation, and common data models. Our rising trajectory in attracting research funding and consultancies will see our team continue to expand as our experience and demand for our services grows.



Training Our Next Generation of GPs

The Teaching and Learning team at the Department of General Practice and Primary Care are passionate about our role in shaping the next generation of general practitioners. We teach core general practice skills to our Doctor of Medicine (MD) students throughout their degree, support Academic General Practice Registrars to learn research and medical education skills. We also train nurses in immunisation and primary care practice, and further our teaching excellence through ongoing research in medical education.



Teaching and Learning Manager
Jane Henty

Training Our Next Generation of GPs

DOCTOR OF MEDICINE

Our Teaching and Learning team coordinates one of Australia's largest programs of general practice placements which ensures all our MD students receive exposure to general practice from early on in their training.

The Melbourne Medical School is currently redesigning the MD curriculum to increase the emphasis on general practice training for our MD students via the introduction of the new Longitudinal Clinical Placement (LCP). The LCP places first year students within a general practice for a day each fortnight to develop their clinical and professional skills. In addition, our third year MD students undertake a core six-week general practice rotation to advance their skills and knowledge to a 'pre-intern' level. This placement includes independent consulting with patients, engaging in a broad range of activities within the practice, specialised clinical workshops, and teaching provided by the Department's academic GPs. Our final year MD students have the option of a further 4-week elective in general practice to extend their knowledge in preparation for a potential career in general practice.

Our experienced GP supervisors are integral to the success of our MD program and receive yearly training sessions in medical education. They also participate in online training modules and 'GP hub' meetings each semester, and are provided with detailed resources to support their teaching.

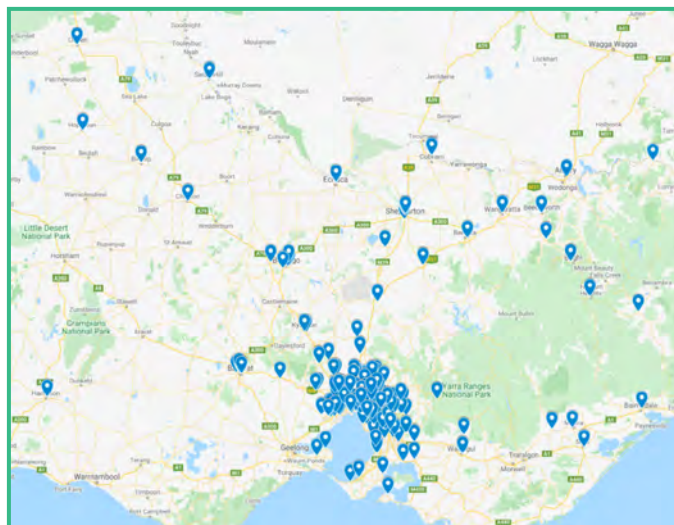
MD Placement Program – yearly statistics

1,000 MD students placed in GP practices

200 General Practices host students

300 GPs nominated to supervise students

10,000 GP student placement days



Map of practices (Source: Australian Bureau of Statistics)

FIRST NATIONS HEALTH

The Department of General Practice and Primary Care is committed to working with the First Nations Health team at the Department of Medical Education to continually develop and strengthen our First Nations Health curriculum so it can be responsive to the needs of the community. We incorporate a strength-based approach to teaching sessions with the medical students in a way that integrates First Nations Health into the core GP curriculum. All our First Nations Health teaching sessions are co-facilitated with First Nations tutors and GPs, giving students a unique experience in developing their consulting skills with Aboriginal and Torres Strait islander patients.

The First Nations Health workshop is designed to help students develop skills in creating culturally safe primary care clinical environments and making patient-centred management plans with Aboriginal and Torres Strait Islander people. Further, we explore how quality improvement processes and data extraction tools can assist in the early detection and management of chronic health conditions and drive improvements in community health.

ACADEMIC REGISTRAR PROGRAM

Our Academic Registrar Program at the Department of General Practice and Primary Care provides GP registrars undertaking specialist GP training via the RACGP or ACCRM pathways with an ideal introduction to a career in medical education and/or research. We have one of the largest Academic Registrar programs in the country, with 71 Academic Registrars having completed the program since 1991.

Through the 12-month part-time training post the Academic Registrars are involved teaching MD students, curriculum design and assessment, medical education-themed journal clubs and mentorship sessions with our academic GPs. On the research side, our Academic Registrars work with senior primary care academics to undertake a research project of their choosing.

The Registrars are strongly integrated into our department, with opportunities to attend departmental weekly Research Matters presentations, access structured teaching on research methods, and present their work at national conferences. Registrars may continue working in the Department after completion of their Academic Post and many have gone on to a variety of new career paths, including as PhD students, academic leaders in primary care and even as the Dean of the Faculty of Medicine, Dentistry and Health Sciences!

RESEARCH EXCELLENCE IN MEDICAL EDUCATION

In addition to leading general practice education, our Teaching and Learning team are also involved in a range of research projects that contribute to advances in medical education.

Recent research projects include a study in collaboration with the University of York and Imperial College London to understand the impact of COVID-19 on Australian and UK medical student learning and professional identity formation. We have also been working with colleagues at Hong Kong University, National University of Singapore and Chinese University of Hong Kong to examine the regional challenges to strengthening and implementing quality primary care curricula in the Asia Pacific Region, with the aim of influencing medical school and health policy in our region of the world.

In addition, Dr Caroline Johnson has recently partnered with Eastern Victoria GP Training (EVGPT) to develop a national curriculum for GP Supervisors and, in conjunction with EVGPT and Deakin University, to explore the role of feedback and performance relevant information in supporting GP registrars to practice without supervision.

PRIMARY CARE NURSING

The Department of General Practice and Primary Care leads the Graduate Certificate in Primary Care Nursing and the Immunisation (Nurse Immuniser) short course. The Immunisation (Nurse Immuniser) short course is based on the National Immunisation Education Framework for Health Professionals (2017) and has been accredited by the National body for health education Health Education Services Australia (HESA).

In less than a year, 432 nurses have graduated from the Department of General Practice and Primary Care's Immunisation (Nurse Immuniser) course and are now nurse immunisers. Another 235 are expected to complete before July 2022. This was made possible with a grant from Department of Health, Commonwealth Government to The University of Melbourne to provide Commonwealth Supported Places for University of Melbourne's Nurse Immuniser Course. The course has been instrumental in getting nurses out and vaccinating our communities during the COVID-19 pandemic.

Training Our Next Generation of Primary Care Researchers

Research in primary care in Australia can only thrive through a commitment to supporting and guiding our future leaders in primary care research. The Department of General Practice and Primary Care is proud to be training the next generation of leaders in primary care research in Australia. Our team of multi-disciplinary academics drive strong research themes, offer highly organised pastoral care and ensure a culture of support amongst our student cohort.



Director, Research Training
Professor Meredith Temple-Smith
[View profile](#)

Training Our Next Generation of Primary Care Researchers

WHY UNDERTAKE A HIGHER DEGREE AT THE DEPARTMENT OF GENERAL PRACTICE?

We are experts in our field

We have highly experienced primary care academics, with a wide variety of research interests and areas of expertise, who supervise and teach our higher degree students. We provide students with a firm grounding in methodological skills to underpin a strong understanding of primary care research to take with them in their future employment.

We value our students

Our highly valued student cohort make an enormous contribution to the Department through their cutting edge and innovative research, which is frequently presented at international conferences. We have fostered a culture of guidance and support for our students during their time at the Department. In addition to structured supervision and funded annual writing retreats for our PhD students, our academics have open-door policies with students to help with anything from brainstorming the initial formulation of research projects to career guidance.

We set our students up for success

The success of our program is evident in our student outcomes. In addition to our strong track record of student publications in highly respected international journals, we have recently had PhD students whose research findings have changed clinical practice guidelines across the world. Our students go on to highly successful careers not only within research and clinical practice, but also wider fields such as in international healthcare organisations and health policy.

OUR RESEARCH PROGRAMS

We have oversight of research students at a variety of stages in their research careers. On average we have 25 higher degree students at the Department who come from a diverse range of backgrounds. Some have clinical experience in areas such as nursing, medicine or psychology, and others are from non-clinical backgrounds but have developed an interest in general practice research.

Doctor of Philosophy (PhD), Master of Philosophy (MPhil)

Our PhD and MPhil students undertake a rigorously designed and original research program, conducted under the guidance of our primary care academic leaders. Each student's final research thesis must make a distinct contribution to knowledge and is judged on originality of approach and in some cases, the discovery of new facts. On completion of a PhD or MPhil students obtain an internationally recognised qualification which acknowledges academic leadership in a specific area.

Master of Primary Health Care

The Master of Primary Health Care offers an entry point into academic study for clinicians with professional registration and experience in the primary care sector, who have not necessarily undertaken the traditional pre-requisite requirements for a higher degree (such as an Honours year). This research program suits a variety of primary care clinicians with an interest in academia.

Honours

The Honours program is a specialised year of study following completion of the Bachelor of Biomedicine or Bachelor of Science. The Honours year involves advanced coursework in primary care research coupled with a supervised research project; it is designed to advance students' aptitude for independent research and help develop communication skills critical for transition to future employment. This highly successful program began in 2011 with 3 students and we have now had 86 students complete this program.

Doctor of Medicine Research Project

Each year we host a group of third year MD students who elect to undertake their 15-week research project in primary care. The MD research project is supported by a course introducing the principles and methods underlying evidence-based medicine and research study design, and provides a strong foundation for understanding the relationship between clinical health care and research. In addition, we also supervise Masters' coursework programs from other Schools in the Faculty who have chosen to undertake research in primary care.

Cancer in Primary Care

In 2021 about 150,000 Australians were diagnosed with cancer, and the majority of them would have seen a GP before their diagnosis. Improvements in early detection and treatment mean that 70% of people diagnosed with cancer will live at least five years after diagnosis, meaning there is a growing number of cancer survivors. Primary care plays a critical role across the cancer continuum, including cancer prevention, screening, symptomatic diagnosis, and increasingly with the long-term care of cancer survivors.



Research lead
Professor Jon Emery
[View profile](#)

Cancer in Primary Care

CANCER IN PRIMARY CARE RESEARCH GROUP

The Cancer in Primary Care Research Group is one of the largest in the world to focus on the role of primary care across this cancer continuum. Our strengths are in:

- Randomised controlled trials of complex interventions in primary care
- Analysis of linked electronic medical record data
- Translation of risk prediction models and genomic tests for tailored screening and treatment
- Development of decision support tools and decision aids
- Systematic reviews and evidence synthesis

This is a highly collaborative group with strong relationships with several local, national and international research groups that share the group's interests in primary care oncology.

PC4

Our research group is the home of PC4, Australia's peak organisation for collaborative cancer trials in primary care. PC4 provides a national infrastructure to foster collaboration between researchers, health care practitioners, policy makers and consumers. It aims to support researchers to develop new study concepts to the point of successful funding, thereby building research capacity and increasing participation of Australians in primary care cancer trials.

PC4

900 members from across Australia

140 research concepts developed into 80 funding applications

\$37 million dollars in funding received since 2009

OUR CURRENT RESEARCH

SMARTscreen measures the impact of an SMS to prompt 50–60-year-old general practice patients to do their National Bowel Cancer Screening test. The intervention is evidence-based and simple, and if effective will have an impact on increasing the early detection of colorectal cancer.

The SITA Trial: Should I take aspirin? is a randomised controlled trial (RCT) investigating adherence to new guidelines published by Cancer Council Australia about the effectiveness of low dose aspirin in people aged 50 to 70 years. The trial tests the effect of a patient-decision aid on informed decision-making and uptake of low dose aspirin to reduce the risk of bowel cancer and other long-term conditions.

The SCRIPT Trial: a study of DNA testing to tailor bowel cancer screening in primary care is an RCT examining the effect of a DNA test to tailor bowel cancer screening according to an individual's risk of the condition. Differences in a patient's DNA can tell us about their risk of bowel cancer, even if there has been no family history of bowel cancer.

The PRESIDE (PhaRmacogEnomicS In Depression) Trial is the first Australian general practice RCT to test the cost-effectiveness of a DNA test to inform selection and dose of antidepressants in people with moderate to severe depression. The trial is based on international guidelines that recommend the use of such tests to tailor antidepressant prescribing

Future Health Today. As part of the Future Health Today (FHT) program, we are conducting a cluster RCT of computer decision support and quality improvement for the timely follow-up of abnormal test results associated with increased risk of undiagnosed cancer. Future research will include the testing of more complex risk algorithms developed and validated from our data linkage program.

The IC3 Trial: Identifying Cirrhosis and liver Cancer in primary Care. This multi-state RCT is testing a new diagnostic pathway to identify patients with undiagnosed cirrhosis in primary care and commence their surveillance for liver cancer, with the ultimate aim of increasing early detection of liver cancer.

Our linked data program

The Cancer in Primary Care Data Team supports the establishment and analysis of linked clinical and administrative healthcare data that spans the continuum of healthcare. This program involves linking primary care data from sources including The University of Melbourne's Patron database and NPS MedicineWise with hospital administrative and clinical data to build a more complete picture of how patients access and utilise primary and acute services for various cancer types. This will enable the study of patterns of care and their impact on clinical outcomes.

GP visits prior to a cancer diagnosis

40% of patients visit their GP approximately 12 months prior to a cancer diagnosis

8 the median number of visits per patient to a GP in the 12 months prior to a cancer diagnosis

Each visit to a GP provides opportunities for early detection

GP visits following a cancer diagnosis

40% of patients visit their GP in the 12 months following a cancer diagnosis

10 the median number of visits per patient to a GP in the 12 months following a cancer diagnosis

GPs play an important role in ongoing care of patients living with cancer

Benefits of linked data

By linking primary care data with clinical and administrative data from hospitals we can:

Understand how patients utilise services across the continuum of care

Develop and validate diagnostic algorithms to create decision support tools such as Future Health Today to improve early detection of specific cancers

Build capacity to support clinicians, researchers and consumers to utilise linked data for the purpose of health services research

Better understand how linked data can answer various new research questions and develop methods and techniques that can be shared to enable growth in data-driven cancer research

Children and Young People's Health

Our Children and Young People's Health (CYPH) program aims to advance the health and wellbeing of children and young people through primary care and its integration with other health, social, workforce, and education systems that support children and young people's wellbeing. Our multidisciplinary team works across the areas of health risk behaviour (including a specific focus on sexual and reproductive health), mental health, adverse childhood experiences, physical wellbeing, preventive health and early intervention.



Research lead
Professor Lena Sancu
[View profile](#)

Children and Young People's Health

CHILD AND ADOLESCENT HEALTH RESEARCH

Our research focuses on:

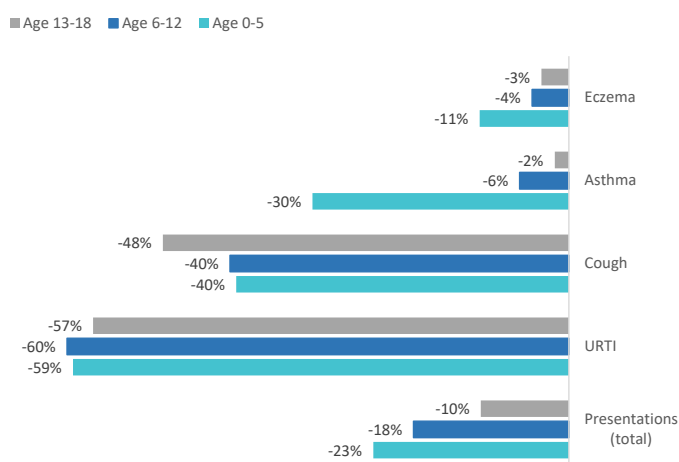
- re-orientating primary care toward a youth friendly, preventive care model;
- building systems that better respond to vulnerable children;
- exploring perspectives of young people's sexual and reproductive health and relationships;
- using technology to detect and address health and wellbeing concerns and to improve care access; and
- settings (education, workplaces) for promoting health and wellbeing as well as access to care.

IMPACT OF COVID-19 – A LOOK AT THE DATA

During the COVID-19 pandemic in 2020 our GPs saw a significant decrease in total paediatric presentations to GPs.

Paediatric presentations

percentage change 2019 to 2020



KEY RESEARCH PROJECTS

Child focus

Caring for Kids

Our recent Victorian research indicates that GPs in training (GP registrars) may lack confidence in managing chronic paediatric psychosocial health, behavioural and developmental concerns. We expanded this to a national study in collaboration with all Regional Training Organisations to ascertain confidence levels and paediatric training experiences. Findings will inform future training programs to strengthen GP registrar confidence in managing paediatric patients.

Childhood Adversity and Associated Depression and Anxiety

Our team is part of the Centre of Research Excellence (CRE) in Childhood Adversity and Associated Depression and Anxiety, led by Murdoch Children's Research Institute (MCRI). Our focus is to reduce the significant mental health burden associated with depression, anxiety and suicidality experienced by children living in adversity and exposed to adverse childhood experiences.

Strengthening Care for Children Study

Our Team is part of the MCRI-led NHMRC trial testing a model of care involving co-consultations between GPs and paediatricians in general practice, case discussions, and point of care advice, to build and strengthen models of quality primary care for children.

Adolescent and young people focussed

Doctors in Secondary Schools (DiSS)

The DiSS Program is a Victorian Government Department of Education and Training initiative that is an Australian-first systematic implementation of evidence-based youth friendly primary care within a school setting. The program operates in 100 schools across Victoria in areas of disadvantage. Our team has led the implementation advice, and provides clinical training and support functions for GPs and nurses in this program.

Wellbeing Health and Youth (WHY) Centre for research excellence in making adolescent health services work

We are partners in this national centre aiming to build capacity in upcoming researchers and young people with lived experience in adolescent health services research in this digital age. Its current focus is on developing ethics of engagement with young people, charting economic and health value of intervening during the second decade and creating a blue print for implementation of youth friendly services systems.

Rebate for Adolescent Health (Rad) Trial

We are collaborating with Melbourne School of Population and Global Health (MSPGH) in an NHMRC funded RCT, to test the potential of a Medicare Rebate for adolescent preventive care visits delivered in general practice. This will inform whether a rebate is good policy for cost effective preventive primary care.

Bringing family, community, culture and country to the centre of health care: culturally appropriate models for improving mental health and wellbeing in Aboriginal and Torres Strait Islander young people

In collaboration with Prof Sandra Eades and our team in Western Australia, we are partnering with two Aboriginal Community Controlled Healthcare Services to trial a new approach to the management of mental health and wellbeing difficulties. We will co-design, pilot and trial a model of engaging Aboriginal young people with primary care, detecting mental health and other needs, and ensuring that mental health and wellbeing needs are addressed.

Towards a Health Promoting University: enhancing the student experience and academic outcomes

Recent attention has focused on the mental health of young people attending university and impacts on their experience and academic outcomes. We conducted a systematic examination of the biopsychosocial determinants of health and wellbeing in an Australian university population and how this impacts mental health outcomes and academic performance. The findings from this study will help establish optimal points for future health promoting interventions.

Sexual and Reproductive Health in Adolescence

Sexual health and well-being are important in the transition to healthy adulthood. In collaboration with MSPGH our research seeks to improve the ways in which young people and health practitioners interact around the sensitive areas of sex and reproduction to ensure person centred quality prevention and/or clinical care.

Social support following miscarriage

Miscarriage affects up to 1 in 4 pregnancies. Significant psychological impacts are common, however healthcare and social support following miscarriage remains rare. This project aims to explore the healthcare and social support experiences of women, men and families following miscarriage, as well as the views of health care practitioners on their suitability to provide this support.

Sexual and Family Violence (SAFE)

Sexual and family violence have a significant impact on the health and well-being of women, children and the wider family both in the immediate and longer term. General practitioners and other health providers often see the people experiencing family, domestic and sexual violence and are in an opportune position to identify and respond.

The uncertain and challenging times that we find ourselves in due to the COVID-19 pandemic are likely to lead to a spike in family violence rates across Australia. With violence against women already at unprecedented levels in our community, addressing this important issue is now more vital than ever.



Research Co-Lead
Professor Kelsey Hegarty
[View profile](#)



Research Co-Lead
Assoc. Professor Laura Tarzia
[View profile](#)

Family, Domestic and Sexual Violence

OUR RESEARCH

Our program aims to improve the safety, health and wellbeing of women, families and communities by:

1. Understanding the dynamics of different forms of family, domestic and sexual violence to inform tailoring of health responses and interventions and;
2. Strengthening health systems to promote early engagement and response for all members of the family.

Our multidisciplinary team works across family and domestic violence, sexual violence and reproductive coercion. Our focus is on the links between violence and health; development and testing of interventions for screening, early identification and responses for women, children, young people and men, including the use of technology. Our program is affiliated with the Melbourne Research Alliance to End Violence Against Women and their Children (MAEVe) and the NHMRC Centre of Research Excellence to Promote Safer Families.

Our research program is underpinned and informed by a strong commitment to listening to the voices of people with lived experience (Experts by Experience). We seek to translate our findings into practice via resources, education and training programs that are co-designed with survivors and responsive to practitioner needs.

UNDERSTANDING DYNAMICS: KEY PROJECTS

Part of our program focuses on understanding the context and dynamics of different types of violence to inform healthcare practice. In particular, we concentrate on under-researched forms of violence such as intimate partner sexual violence, psychological abuse, and reproductive coercion.

UNCOVER

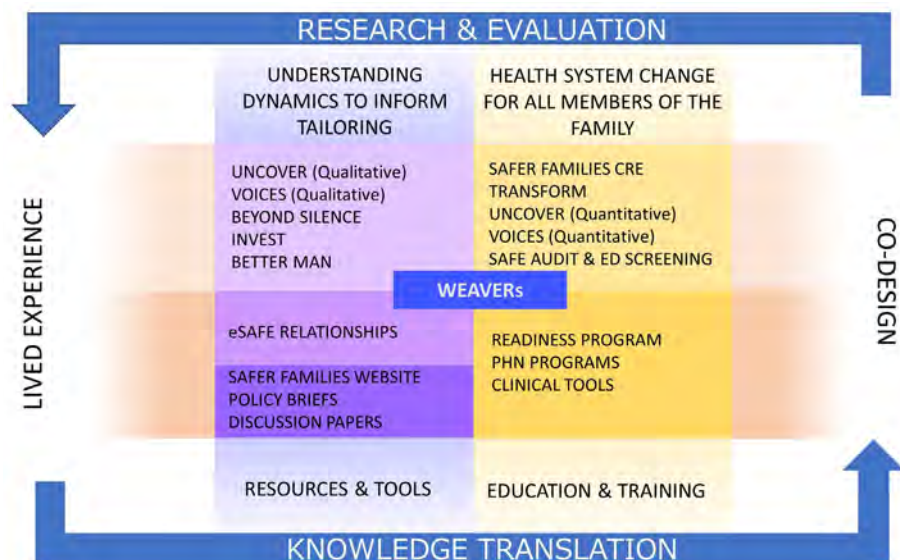
The UNCOVER project seeks to understand women's experiences of psychological violence and its connection with other forms of abuse in relationships. The project also explores women's experiences of reproductive coercion, its impact on mothering and examines the non-physical risk factors for increased severity of intimate partner or sexual violence.

INVEST

Little is known about international students' experiences of sexual or intimate partner violence. INVEST seeks to explore the nature, context and impacts of violence against female international students, understand the lived experience of sexual or intimate partner violence as a female international student and discover their help-seeking needs.

BEYOND SILENCE

This project explored women's experiences of intimate partner sexual violence, its emotional impacts and intersections with psychological abuse.



eSafe-relationships

We have created a suite of online tools, which can help support the community in relation to domestic abuse and family violence.

Burndawan is the first technological intervention to be co-designed and developed with an Aboriginal community, the Wadawurrung community in South-West Victoria, for their own use to overcome the greater barriers Aboriginal and Torres Strait Islander peoples face to seeking help than non-Indigenous peoples.

<https://burndawan.com.au>

Beyond Silence provides women with an evidence-based, trauma-informed website that helps them name the abuse, provide initial support, and promote help-seeking to improve their safety, quality of life and connection to the community.

Better Man is a brief online healthy relationship tool used to motivate men to seek help for domestic violence and abuse. It engages men in the community and provides them with awareness and motivation to seek help for their violent behaviour – before the justice system intervenes.

<https://www.betterman.org.au>

MySafety is a website for students at The University of Melbourne, which contains interactive elements to help students reflect on their relationship, understand the complexities around sex and consent, find out the pros and cons of accessing different forms of support, and make a decision about what to do next in response to sexual and dating violence.

<https://mysafety.org.au>

HEALTH SYSTEM CHANGE FOR ALL MEMBERS OF THE FAMILY: KEY INITIATIVES

The Safer Families Centre

The Department of General Practice and Primary Care leads the Centre of Research Excellence to promote Safer Families (Safer Families Centre), the first dedicated centre to lead research into the health effects of domestic violence and abuse as well as the health sector policy and practice responses needed to improve the safety, health and well-being of women, children and young people.

Our focus is a future where health services can effectively support any member of a family affected by domestic abuse and violence.

The Safer Families Centre is a partnership between the University of Melbourne, Murdoch Children's Research Institute, LaTrobe University and the South Australian Health and Medical Research Institute. We bring together investigators and scholars globally.

OUR INITIATIVES

The Readiness Program

The Safer Families Centre in partnership with the RACGP, Blue Knot Foundation and Phoenix Australia has developed the Readiness Program, a practical and accessible free national training program enabling primary health care providers to more confidently and effectively recognise, respond, refer and record disclosures of domestic and family violence using a trauma and violence informed approach. It facilitates better support to people experiencing or at risk of domestic and family violence.

Transform

General practitioners (GPs) and other health professionals (nurses, psychologists, therapists) are the professional group most commonly told about intimate partner violence. Unfortunately, there is evidence that some practitioners lack essential skills with many barriers needing to be overcome. This research aims to explore ways that trauma and violence-informed care can be enabled through the health system so that victim survivors and their families can be supported on their pathway to safety and care no matter which health service they access.

EXPERTS BY EXPERIENCE: The WEAVERS

The WEAVERS are a panel of 12 women who have survived family violence and sexual violence in its many forms. The group plays an important role in the University's research by assisting researchers to set priorities, develop innovative research designs and by communicating findings as 'translators' to the community. In addition, the WEAVERS are supported to develop skills to explore their own research questions, carry out data collection and analysis, and write up findings.

Survivor Story

I am an incredibly proud member of the WEAVERS, a group of women who all bring different strengths and real-life experiences to the table. Their bravery and courage constantly encourages me to step outside my comfort zone. As a group of complete strangers, we have grown to be family who are supportive and encouraging of each other. Our lived experiences bond us.

The other equally important team members are the research staff who work jointly and collaboratively with us. They have been on this amazing journey with us to form the WEAVERS and we couldn't have done it without them. They have been incredibly supportive, nurturing and patient, creating a safe space for us that is also trauma informed, which is so important.

We have chosen research projects to be involved with that resonate with us and each of us uses their own personal skill set as we all work together as a team. For me as a survivor, a huge highlight has been working on the "Experts by Experience Framework." I know that the wording *Experts by Experience* may be a bit challenging, as in theory I have no scholastic qualifications but you can only get my knowledge by living it.

All survivors have a multitude of experiences with copious services, be they good or bad. As we are consumers, we need to be included in the conversations, be able to give non-biased feedback and work together to get the best outcomes for women and their children.

GPs can, and do, play a very important role in domestic violence. It requires a leap of faith by the GP to ask the first question and start the conversation. It's about GPs taking a journey with the women and asking them what they need and want. You may change a woman's life and if she's lucky, she may hear the words that I heard when I finally divulged... *"I believe you."*

Those words were life changing.

Being on the WEAVERS panel has had a huge impact on me and my wellbeing. It happened organically as I went along. I am certainly more confident and now know my own self-worth. Finding myself and knowing the things that I do have purpose and meaning. I found a voice I never knew I had.

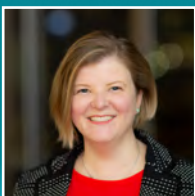
Fiona.



Future Health Today

As our population ages, more and more Australians are living with chronic disease - the majority of which is diagnosed and managed in general practice. However, with increasing numbers of patients and the proliferation of clinical guidelines to keep up to date with, management of chronic disease in primary care is becoming more complex. To address this challenge, we, in collaboration with our partners at Western Health, worked with general practice and consumer advisory groups to develop Future Health Today.

Future Health Today is a multifaceted digital intervention which aims to change the course of chronic disease in Australia, improving patient outcomes and reducing costs to the healthcare system. It is complemented by RACGP accredited quality improvement opportunities and Project ECHO® community of practice webinars.



Research lead
Associate Professor Jo-Anne Manski-Nankervis
[View profile](#)



FUTURE HEALTH TODAY

WHY FUTURE HEALTH TODAY IS NEEDED

The clinical need for Future Health Today is clear. Chronic disease management continues to be an increasing aspect of general practice attendances. Research utilising primary care electronic medical records (EMRs) in our Patron dataset indicates that there is room to improve the diagnosis and management of chronic disease in primary care.



Future Health Today program of work



Future Health Today software tool components

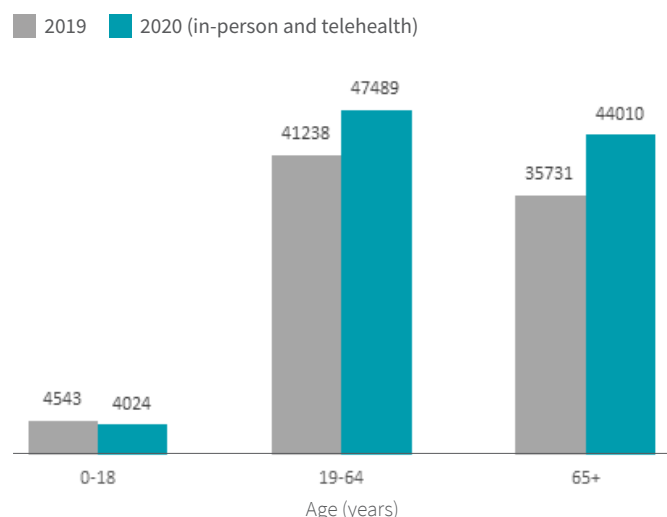
Increased use of chronic disease management MBS item numbers during the pandemic

Between 2019 and 2020 there has been an increase of 17% in the use of chronic disease management MBS item numbers for GP Management Plans, Team Care Arrangements and Reviews, according to our analysis of EMR records in the Patron database. The largest increase in use of these MBS item numbers was for the over 65 population, with a 23% increase.

This increase in utilisation of chronic disease management MBS item numbers includes, for 2020, both in-person consultations (721,723,732) and the temporary telephone (92068, 92069, 92072) and telehealth (92024, 92025, 92028) chronic disease item numbers introduced on 30 March 2020 (the telephone chronic disease item numbers ceased on 1 July 2021). This data indicates an ongoing and potentially increasing focus on chronic disease despite the COVID-19 pandemic, likely aided by increased ease of access to these services through telephone and telehealth consultations.

Use of Chronic Disease Management MBS item numbers* by age group

of use of item numbers



*MBS item numbers 721, 723, 732, 92024, 92068, 92025, 92069, 92028, 92072

Chronic kidney disease – diagnosis and management

We analysed EMR data from 87 general practices in our Patron dataset relating to chronic kidney disease (CKD), a condition typically asymptomatic initially but which can lead to significant morbidity and decreased life expectancy. We found diagnosis and management of CKD was often not consistent with current clinical guidelines.

Prevalence of CKD

0.94% of patients (aged 18-79) either have a recorded diagnosis of CKD or pathology results indicating undiagnosed CKD. This prevalence is lower than expected from National Health Survey findings, suggesting increased need for testing for CKD in the community. Approximately half of patients with pathology results indicative of CKD do not have a diagnosis recorded in their electronic medical record.

Blood pressure management

35% of patients (aged 18-79) with a diagnosis of CKD or pathology results consistent with CKD were **not prescribed guideline recommended antihypertensive medication** to reduce the risk of progression of CKD and cardiovascular disease.

Cholesterol management

44% of patients (aged 18-79) with a diagnosis of CKD or pathology results consistent with CKD were **not prescribed guideline recommended statin medication** to reduce the risk of cardiovascular disease in people with CKD.

Guideline concordant diagnosis and management of CKD

HOW FUTURE HEALTH TODAY WAS CREATED

Future Health Today has been designed by primary care for primary care. We worked hand in hand with a *general practice staff panel* and a *consumer panel* to design Future Health Today together from the ground up. Our co-design approach ensures Future Health Today meets the needs of general practice and consumers whilst seamlessly integrating into the workflows of everyday GP consultations. Advisory panels comprised of primary care staff and consumers currently using Future Health Today provide ongoing recommendations for continuous improvement of the program going forward.

Department of General Practice

Researchers, medical professionals, health informaticians software developers

General practice staff panel

GPs, Practice Nurses, Practice Managers

Consumer panel

Patients who attend general practice

HOW FUTURE HEALTH TODAY WORKS

Future Health Today is a software platform that searches and analyses information already housed in patient EMRs to provide suggestions for interventions at both the practice level (via the 'Portal') and individual patient level (via the 'Clinical Decision Support Tool'), as well as support for individualised quality improvement activities. EMR data is extracted nightly and processed locally, so patient data never leaves the practice.

Portal

The Portal automatically searches practice EMR data to create a cohort of patients who:

- are **at risk** of chronic disease;
- may have **undiagnosed** chronic disease, or
- may need changes to **optimise management** of their chronic disease.

Patients who form the cohort can then be recalled for review with their GP to ensure their chronic disease is managed optimally.

Clinical Decision Support Tool

The Clinical Decision Support Tool is a point-of-care tool within each patient's EMR which provides suggestions for GPs during each consult for individualised investigations, diagnoses and management to optimise patient care.

Suggestions are based on current evidence and clinical guidelines and the underlying rationale is provided to the treating GP.

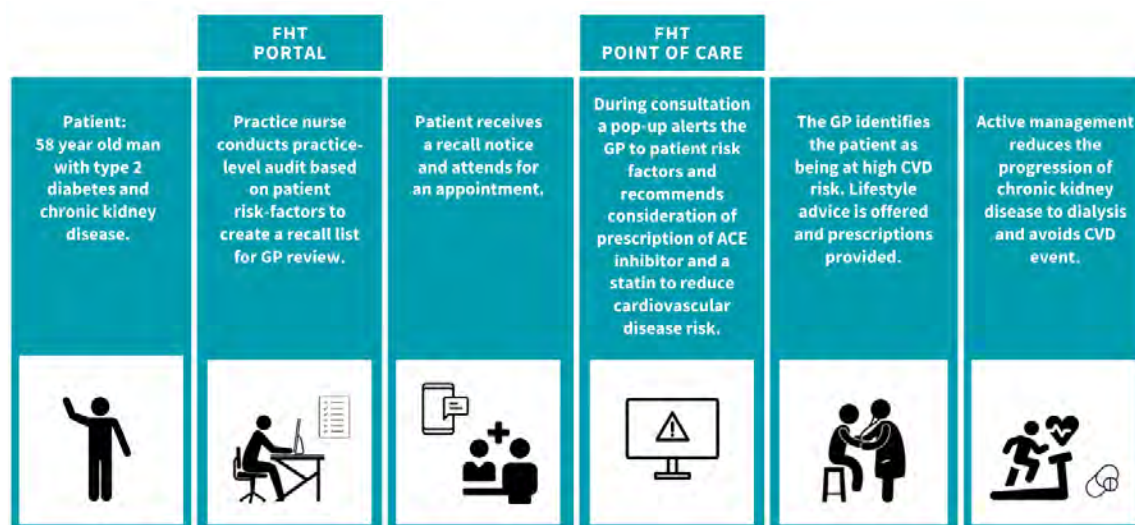
Links to current guidelines and consumer resources are provided for immediate use in-consult.

Quality Improvement

Our software tools allow EMR data from the practice to be utilised for individualised and RACGP-accredited quality improvement activities, reducing the administrative burden on practices planning and recording staff quality improvement activities.

As part of Project ECHO®, we have developed a series of live and interactive web-based educational sessions linking participating practices with interdisciplinary specialist teams, where participants can also present de-identified cases for active advice and support.

Future Health Today software tool components



Future Health Today process

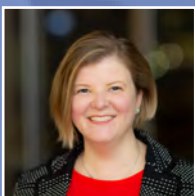
FUTURE HEALTH TODAY 2021 TRIAL

We conducted a 12-month cluster randomised control trial to implement and evaluate Future Health Today with 41 general practices across Victoria. Participating practices were randomly assigned to one of two quality improvement programs, the first focussing on reducing cardiovascular disease risk in people with chronic kidney disease (the 'CKD study') and the second focusing on optimising follow up of pathology results indicative of increased cancer risk (the 'Cancer study').

12 months after randomisation the data from the Future Health Today program will be examined to answer a number of research questions, including how care for patients utilising the Future Health Today quality improvement programs in the CKD study and the Cancer study compared to usual care, and what the barriers and facilitators for use of Future Health Today in everyday clinical practice were. This study is on track to be completed in 2022 and the results will be instrumental in helping to build a strong evidence base for chronic disease management in primary care.

Infectious Diseases and Antimicrobial Resistance

Antimicrobial resistance from the misuse and overuse of antibiotics is one of the main public health threats facing humanity. As the medical professionals who prescribe the majority of antibiotics for human health in Australia, general practitioners have a critical role to play as antimicrobial stewards. The Department of General Practice and Primary Care have brought together a multidisciplinary team of general practitioners, microbiologists, pharmacists and infectious disease specialists to develop ground-breaking programs to optimise antibiotic prescribing and combat antimicrobial resistance. We collaborate closely with our valued partners at the National Centre for Antimicrobial Stewardship (NCAS) and Therapeutic Guidelines Limited.



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Infectious Diseases and Antimicrobial Resistance

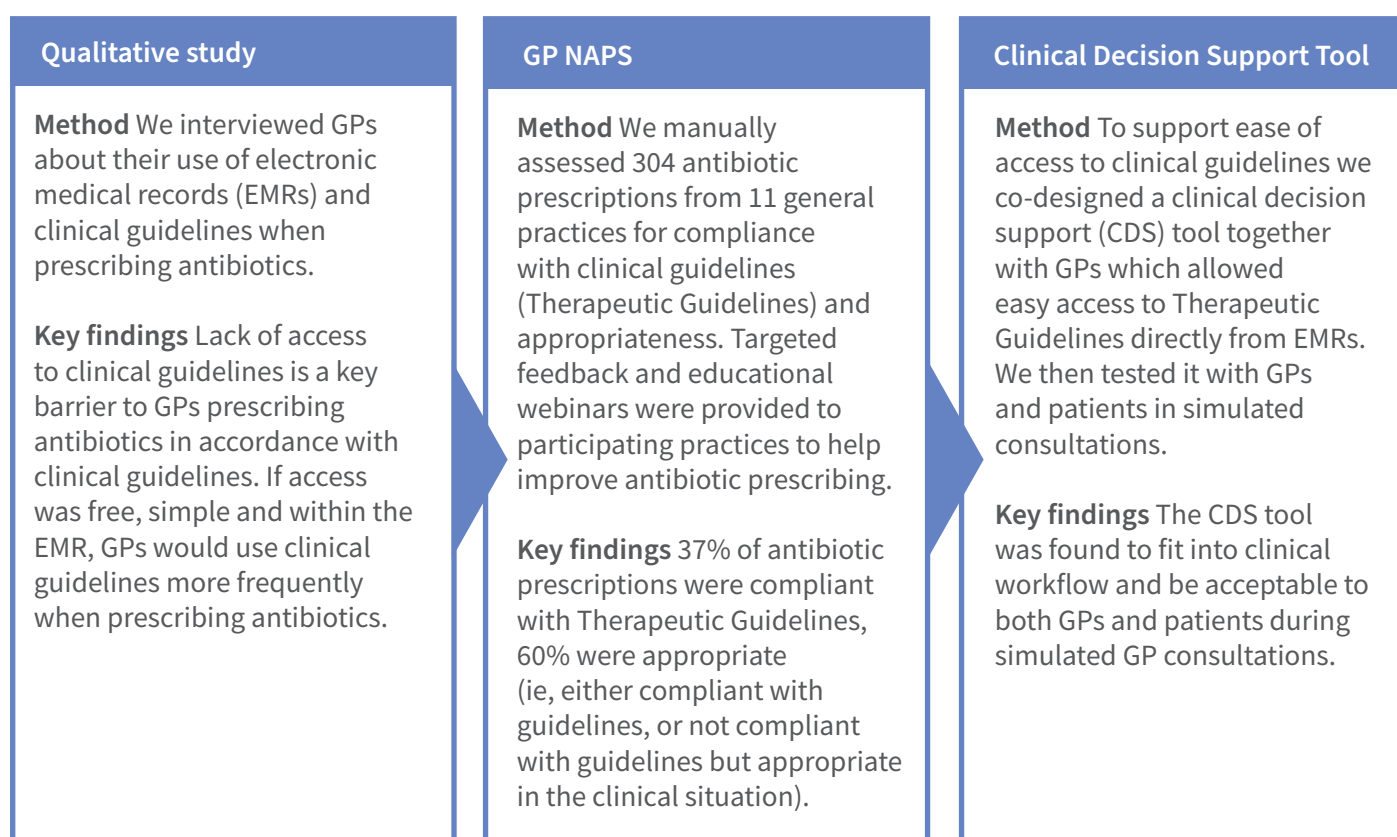
QUALITY IMPROVEMENT IN ANTIMICROBIAL PRESCRIBING

Antimicrobial stewardship (AMS) programs are coordinated interventions to measure and improve the appropriate use of antimicrobial agents. Whilst AMS programs are widely used in hospitals and have proven to be effective at optimising antimicrobial prescribing, there have not been any ongoing AMS programs specifically tailored for primary care.

To address this gap we have developed of our own AMS program designed for and with general practice with the aim of optimising antimicrobial prescribing in primary care, combatting antimicrobial resistance and saving patient lives.

Preliminary studies

We undertook a series of preliminary studies into antibiotic prescribing practices in general practice and utilised our findings to create Guidance GP, an RACGP accredited AMS quality improvement program designed in collaboration with NCAS and the North Western Melbourne Primary Health Network (NWMPHN).



Preliminary studies of antibiotic prescribing practices

Guidance GP

Our Guidance GP program is designed to optimise antimicrobial prescribing in primary care by:

1. **Streamlining clinical guideline access:** Access to Therapeutic Guidelines directly from EMRs is designed to promote antibiotics prescribing in accordance with clinical guidelines;
2. **Automating antimicrobial prescribing audits:** Using our GP NAPS framework to automatically audit antimicrobial prescriptions provides practices and GPs with data on actual prescribing practices; and
3. **Providing targeted feedback and education:** Audit data is utilised to provide GPs and practices with targeted feedback using written reports and educational webinars to optimise practice.

Method

- 41 GPs from three practices in metropolitan Melbourne
- GP NAPS audits at the commencement and conclusion of the study
- Exploration of streamlined access to Therapeutic Guidelines via the EMR
- Interviews and focus groups to explore the acceptability, usability and barriers of implementation and participation with Guidance GP

Findings

GPs felt Guidance GP would promote use of clinical guidelines, provision of patient education handouts, delayed antibiotic prescribing and prescription of guideline-concurrent quantities of antibiotics.

Facilitators for implementation included a practice-wide approach; supportive practice ‘champions’; strong communication between GPs and practice managers; and minimised costs and work-flow interruptions.

Barriers to implementation comprised information technology disruptions; increased workload; concern that data may not accurately reflect nuanced clinical decision making; and concerns that audit findings may be used against practices or individual GPs (e.g. for the purposes of funding).

Next steps

Our pilot evaluation study demonstrated that Guidance GP can help to optimise antibiotic prescribing in primary care and reduce antimicrobial resistance in Australia.

We plan to expand the roll out of Guidance GP by utilising machine learning to help automate assessment of antibiotic prescription data from EMRs and streamlining implementation of IT changes for guideline access.

Guidance GP Pilot Evaluation Study

Educating patients about appropriate antibiotic use

We have created a series of seven patient evidence-based information sheets for common infections to support efficient shared decision making between patients and GPs in respect to use of antibiotics (available at <https://www.ncas-australia.org/community-information-sheets>). The information sheets were co-designed with GPs and patients via a series of workshops to ensure they met the needs of both parties, and were then piloted across four metropolitan and four rural general practices.

The information sheets were found to be easy to understand and use by participants, with patients reporting improved knowledge about antibiotics and infection management. We aim for these information sheets to be utilised by guideline developers and peak bodies to provide, endorse and update as new evidence emerges.

MIDDLE EAR INFECTION

Acute otitis media

Middle ear infections are usually the result of an infection of the nose and throat, causing blockage and fluid build-up behind the ear drum. They are common in young children, especially after a cold.

What does it feel like?
Middle ear infections usually cause ear pain, reduced hearing, and a fever. Children may be irritable, cry a lot, pull and rub their ear, and have trouble sleeping.

What can I do to feel better?
Symptoms usually resolve within 2-3 days. Paracetamol and ibuprofen may help reduce pain. It may also be helpful to avoid cigarette smoke in the environment and check for your child's nasal congestion and colds.

Will antibiotics help?
Antibiotics are not usually needed. Most middle ear infections resolve without antibiotics. However, they are important for some groups of people who are at increased risk of complications (see below). Taking antibiotics when you don't need them can lead to the bacteria becoming resistant to that antibiotic. When bacteria become resistant to an antibiotic, the antibiotic no longer works.

Do I need to see a doctor?
See your doctor if symptoms worsen or are not improving within 2-3 days. Children under 6 months, Aboriginal and Torres Strait Islanders or those with other medical conditions which affect their ability to fight infections should see a doctor as they may need to start antibiotics early. You should see your doctor if you have very severe ear pain or you are concerned.

COVID-19 is caused by a virus, and it can cause cough, runny nose, and sore throat. People with these symptoms should be tested for COVID-19 and should isolate until test results are known.
For information go to <https://www.ncas-australia.org/COVID-19-information-sheets>

This information sheet was developed by the National Centre for Antimicrobial Stewardship and the University of Melbourne. Information sheets on other common infections can be found at <https://www.ncas-australia.org/community-information-sheets>.

The information in this booklet is not intended to be a comprehensive guide and is provided without warranty of any kind. It is strongly recommended you seek advice from a registered health care professional for diagnosis and treatment. The University of Melbourne accepts no responsibility for any errors or omissions in the content of this booklet and will not be liable in any or proceed due to any decision made or action taken in reliance on the information contained in this booklet.

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ACUTE BRONCHITIS

Acute bronchitis is an infection of the airways in the lungs, most commonly caused by a virus. COVID-19 may need consideration in people with these symptoms below:

What does it feel like?
This involves a cough which may be associated with chest pain or green sputum (phlegm). Often, noisy breathing, blocked nose, sore throat, mild headache, and fever.

What can I do to feel better?
Acute bronchitis usually goes better on its own. Paracetamol and ibuprofen, warm drinks, honey, cough lozenges and sipping fluids from the throat may help ease your symptoms. Avoid anything that irritates the airways such as cigarette smoke.

Will antibiotics help?
Antibiotics are not usually needed. Taking antibiotics when you don't need them can lead to the bacteria becoming resistant to that antibiotic. When bacteria become resistant to an antibiotic, the antibiotic no longer works.

What can I do to stop it spreading?
Infections can spread to others when you cough, sneeze or blow your nose. Cover your mouth with your elbow when you cough or sneeze, wash your hands regularly, dispose of tissues after use and stay away from crowded places while unwell.

Do I need to see a doctor?
Not usually. The cough normally lasts 2 to 3 weeks to go away. If your symptoms last longer or if you have trouble breathing, you are feeling worse, you have other medical conditions such as chronic lung disease, or you are concerned, see your doctor.

COVID-19 is caused by a virus, and it can cause cough, runny nose, and sore throat. People with these symptoms should be tested for COVID-19 and should isolate until test results are known.
For information go to <https://www.ncas-australia.org/COVID-19-information-sheets>

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URINARY TRACT INFECTION IN NON-PREGNANT WOMEN

Acute cystitis

Urinary tract infection (UTI) is an infection of the bladder, usually caused by bacteria.

What does it feel like?
You may experience painful burning or stinging sensation when urinating, and need to urinate more often.

What can I do to feel better?
Paracetamol, ibuprofen, clean over-the-counter medications and drinking plenty of fluids may relieve your symptoms. Speak with your doctor or pharmacist for more advice.

Will antibiotics help?
Most symptoms may get better on their own in young women who have no other medical conditions and are not pregnant. Antibiotics may be needed if symptoms persist or get worse. Antibiotics are usually recommended for post-menopausal women or those with other medical conditions.

What can I do to prevent it?
It is not always possible to prevent a UTI, however, urinating after sex, and wiping from front to back may help to reduce infections. Ensuring you drink enough water each day may also help. Women who get many UTIs should discuss this with their doctor.

Do I need to see a doctor?
See your doctor immediately if you experience high fever (39°C), shaking chills, vomiting, pain in the back or side of the abdomen. Always see your doctor if you have other medical conditions, you are pregnant, you are taking very little water or you are concerned.

This information sheet was developed by the National Centre for Antimicrobial Stewardship and the University of Melbourne. Information sheets on other common infections can be found at <https://www.ncas-australia.org/community-information-sheets>.

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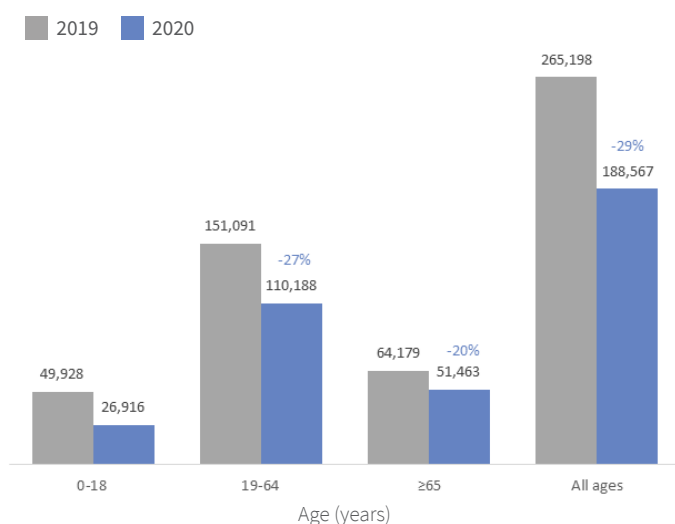
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Patient information sheets for common infections

Impact of COVID-19 on antimicrobial prescribing

The COVID-19 pandemic has significantly impacted the antimicrobial prescribing patterns of GPs. There are many potential reasons for this. Infection control measures such as social distancing, mask wearing and working from home are likely to have impacted the circulation of communicable disease in the community. Increased community awareness of the differences in treatment of viral compared to bacterial infections may have changed patient attitudes to seeking antimicrobials. Finally, patients may also have avoided attending GP practices for complaints such as sore throats due to risk of exposure to COVID-19. Regardless of the main causative factor, data from our Patron database demonstrates that there has been a decrease in prescribing of common antimicrobials across all age groups between 2019 and during the pandemic in 2020.

Impact of COVID-19 on GP prescribing of common antimicrobials



* Prescriptions for Amoxicillin, Amoxicillin+Clavulanate, Cefalexin, Trimethoprim, Doxycycline, Mupirocin, Trimethoprim+Sulfamethoxazole



Primary Care Mental Health

A large component of primary care delivery involves supporting people with mental ill-health¹. Indeed, GPs are often the first point of contact for people experiencing concerns around their mental health and they have further ranging and critical roles in mental health care.



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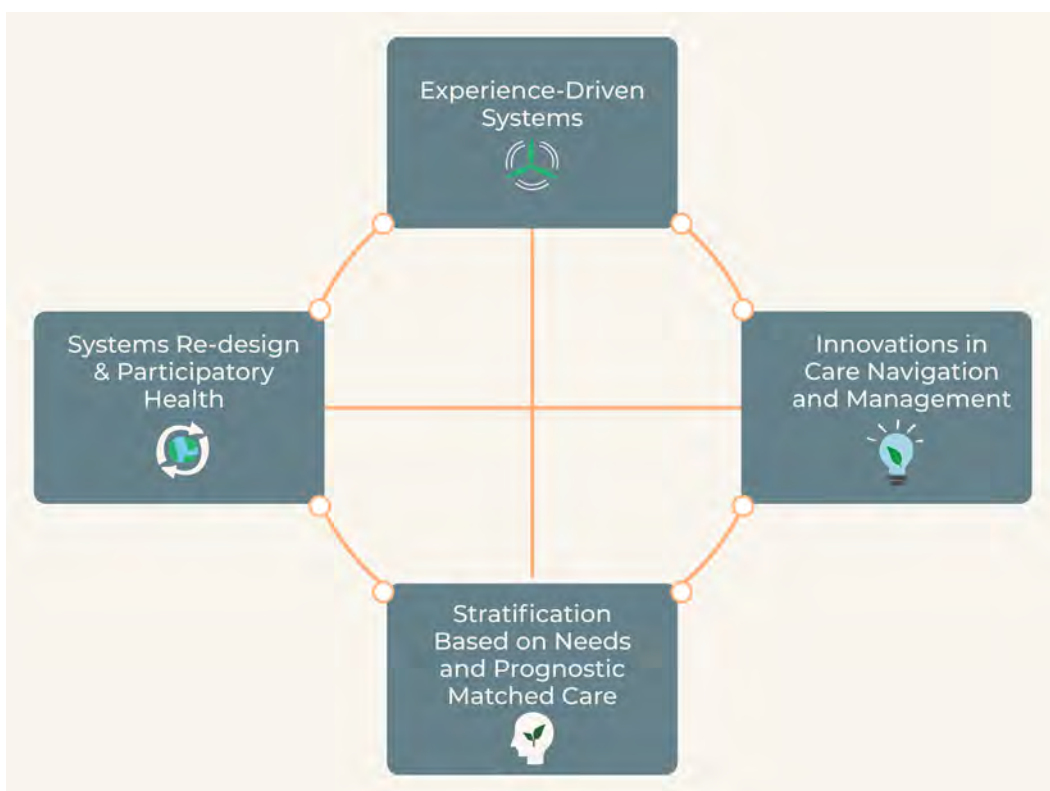
Primary Care Mental Health

Established by Professor Jane Gunn an academic GP, in 2005, the Primary Care Mental Health Research Group has conducted a number of world-first trials and research to optimise person-centred mental health that enhances physical, social and mental well-being. The studies are wide ranging as shown in the diagram below, across supporting GPs in mental health diagnoses, assessing risk and providing psychological, pharmacological and non-pharmacological treatment and management models, and also helping people to navigate our complex mental health system, managing their physical health and providing trusted source of support.

The Primary Care Mental Health Research group has been led by Professor Victoria Palmer since 2018. Prof Palmer has embedded a Co-Design Living Lab program to facilitate end to end research design to

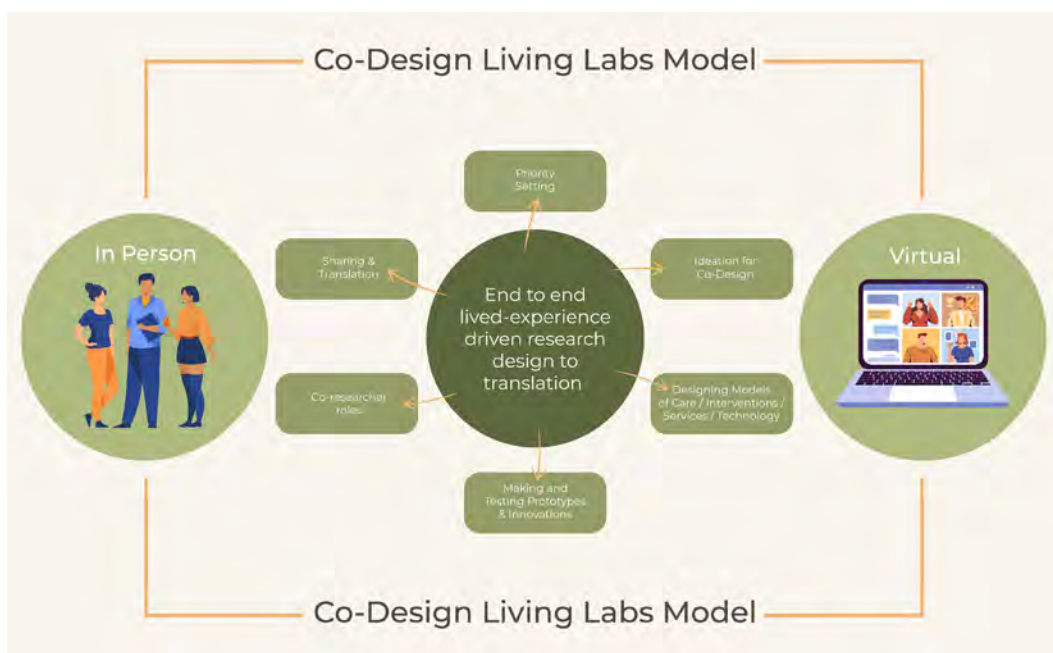
translation with over 2000 community members with lived-experience and carers, family and kinship group members shown in the diagram on the next page. These members have been invited from completed research studies to bring their living expertise and research experience together with researchers, industry and government where appropriate to co-design new research, grants, new models of care and innovations in primary health care. The Co-Design Living Labs program also supports co-researcher models and the development of embedded models of lived-experience research within the mental health care setting.

The team also has a vibrant culture of collaboration and exchange through the Department's Visiting Academic program that hosts visitors from around Australia and the world.



Primary Care Mental Health Research Studies

¹ <https://www.racgp.org.au/FSDEDEV/media/documents/Special%20events/Health-of-the-Nation-2019-Report.pdf>



Co-Design Living Labs Model

THE ALIVE NATIONAL CENTRE

The University of Melbourne has been announced as the administering hub for the first ever National Mental Health Research Translation Centre (ALIVE National Centre), established under a \$10 million NHMRC Special Initiative in Mental Health grant over 5 years. Professor Victoria Palmer, led the bid and serves as the inaugural director of the ALIVE National Centre which aims to improve health outcomes for Australians living with ongoing distress and mental ill-health and reduce the individual, social and economic inequities associated with current care. The ALIVE National Centre will serve as a hub connecting universities, research institutes and organisations with individuals with a lived experience of mental health issues to translate high-quality research into effective health policy practice and healthcare improvements. The ALIVE National Centre is also committed to helping develop the next generation of mental health researchers in Australia.

CURRENT RESEARCH INITIATIVES

The Assertive Cardiac Care Trial (ACCT)

People who live with what are termed ‘severe mental illnesses’ have a higher likelihood than others of developing cardiovascular diseases and missing out on up to 25 life years. We created a national primary care-based initiative to test a new, remotely delivered healthy hearts intervention, co-produced with people living with severe mental ill-health, to improve their heart health.

WiserAD: A randomised trial of a structured online intervention to promote and support antidepressant de-prescribing in primary care

Australians take more antidepressants than almost anyone else in the world, largely due to increasing long-term use of antidepressants which is costly and has associated health risks. However, ceasing these medications can be difficult in practice. We developed a structured, web-based intervention with input from GPs and people who have been on long-term antidepressant medication to support the de-prescribing of antidepressants.

CovidCare: A clinical trial of the safety and efficacy of a self-monitoring app for COVID-19 symptoms and the mental health impacts of self-isolation

CovidCare is a mobile app which provides self-monitoring support for patients with symptoms and/or a diagnosis of COVID-19. Our team of researchers are working in collaboration with the app developers, Two Bulls, Swinburne University and clinicians from Altona North Medical Group to determine the efficacy and safety so that the app can be registered as a software as medical device for future clinical care. Data from the CovidCare app provides information about the impact on mental health of self-isolation due to COVID-19, the symptom trajectories of COVID-19 and the benefits and potential harms of self-monitoring.

COMPLETED RESEARCH STUDIES

The CORE Study

The CORE Study (led by Prof Victoria Palmer in partnership with the Victorian Mental Illness Awareness Council and Tandem -mental health carer peak body) was a world first trial to build an evidence base about service user, carer and staff engagement in service re-design and psychosocial recovery. Over four years (2013-2017) CORE tested if a modified version of the novel Mental Health Experience Co-Design (MH ECO) improved psychosocial recovery outcomes, quality of life and service recovery orientation for people living with severe mental ill-health and ongoing distress.

The CORE trial attracted global attention with the: delivery of seven invited international presentations (e.g. to Kings College London & MedicineX Stanford University) and the Australasian Academic Association for Primary Care (AAAPC) Most Distinguished Paper Award (2018).

From CORE we established our Co-Design Living Labs model to support participation in research design, delivery, improvement and translation across the health care setting. The study identified that people experiencing severe mental ill-health attend GPs on average 14 times a year, but over half who reported physical health conditions did not have the documented management plans that they should. The CORE program of work has contributed to translational activities with: the Agency for Clinical Innovation, NSW Health (co-design capabilities); the Victorian Dept of Health and Human Services (lived experience mental health engagement framework) and community mental health service improvement.

Link-me: A model of stepped mental health care

Both the Diamond clinical prediction tool and Target-D Decision Support tool that were tested and refined in our previous trials, formed the basis of the Link-me national trial. Link-me set the scene for transformation of mental health care in the primary care setting, through the implementation of a stepped care model.

Three PHN leaders in mental health were selected by the Commonwealth Department of Health to collaborate with Prof Gunn's research group on Link-me. Link-me compared to usual care showed an improvement in GP assessment and referral processes. Patients reported an increased self-awareness and capacity to take ownership of their treatment. The Link-me tool has recently been contracted by the Commonwealth Department of Health who will work with the Link-me research team led by Prof Gunn, to embed relevant components of the tool into the online National Mental health Platform – Head to Health. Here anyone will be able to go online and answer a short 'quiz' and be provided with information about their mental health and directed to services most appropriate to them.

The Target-D Trial

The Target-D Clinical Prediction Tool was derived from a decade of research following the trajectories of people with depression symptoms in the Diamond cohort. Target-D focused on depression and multimorbidity and harnessed the patient experience in order to drive health care reform. It has been purpose designed to be completed by patients in the general practice setting, either in the waiting room or during GP/nurse consultations. From Target D the Decision Support Tool for the Link-Me intervention was developed to identify patients with complex needs and low needs and who have symptoms of conditions other than depression.

The Target-D Clinical Prediction Tool complements clinical judgement and is easy to use in the clinical setting. To date, the Clinical Prediction Tool has been used with over 7,000 primary care patients, is acceptable to clinicians, and can be incorporated into the workflow of general practice.

Diagnosis, Management and Outcomes of Depression in the Primary Care Setting (The Diamond 10-year cohort study)

The Diamond cohort study was featured in NHMRC's '10 of the Best' showcases projects that support the improvement of human health: https://www.nhmrc.gov.au/sites/default/files/documents/attachments/publications/10_of_the_best_12th_ed.pdf

Diamond mapped the trajectory of depression in Australian general practice over a 10-year period. Findings include recognising: the impact and prevalence of subthreshold and mild depressive symptoms on general health and wellbeing; the substantial proportion of people with severe symptoms that miss out on treatment; that long-term use explained the increases in antidepressant prescribing in primary care. Diamond provided the data to build one of the first clinical prediction tools to assist with tailoring depression care in the primary care setting (Target D and Link-me, above).

Diamond underpins the basis of productive international collaboration with primary care researchers, social scientists, neuroscientists, software engineers and mathematicians from the UK, New Zealand, Canada, Hong Kong and USA. This work has been at the cutting edge of research developments in areas such as gene-environment interactions and the use of sophisticated data analytic techniques. Diamond has contributed to the education and careers of many researchers and to date has attracted 9 post-doctoral research fellows, supported 24 research student completions, published 50+ research publications and continues to be a unique resource and contribute nationally to policy reform. It was also one of the first studies to document the existence of a dose-response relationship between the number of physical health conditions a person has and the likelihood they will experience depression.

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