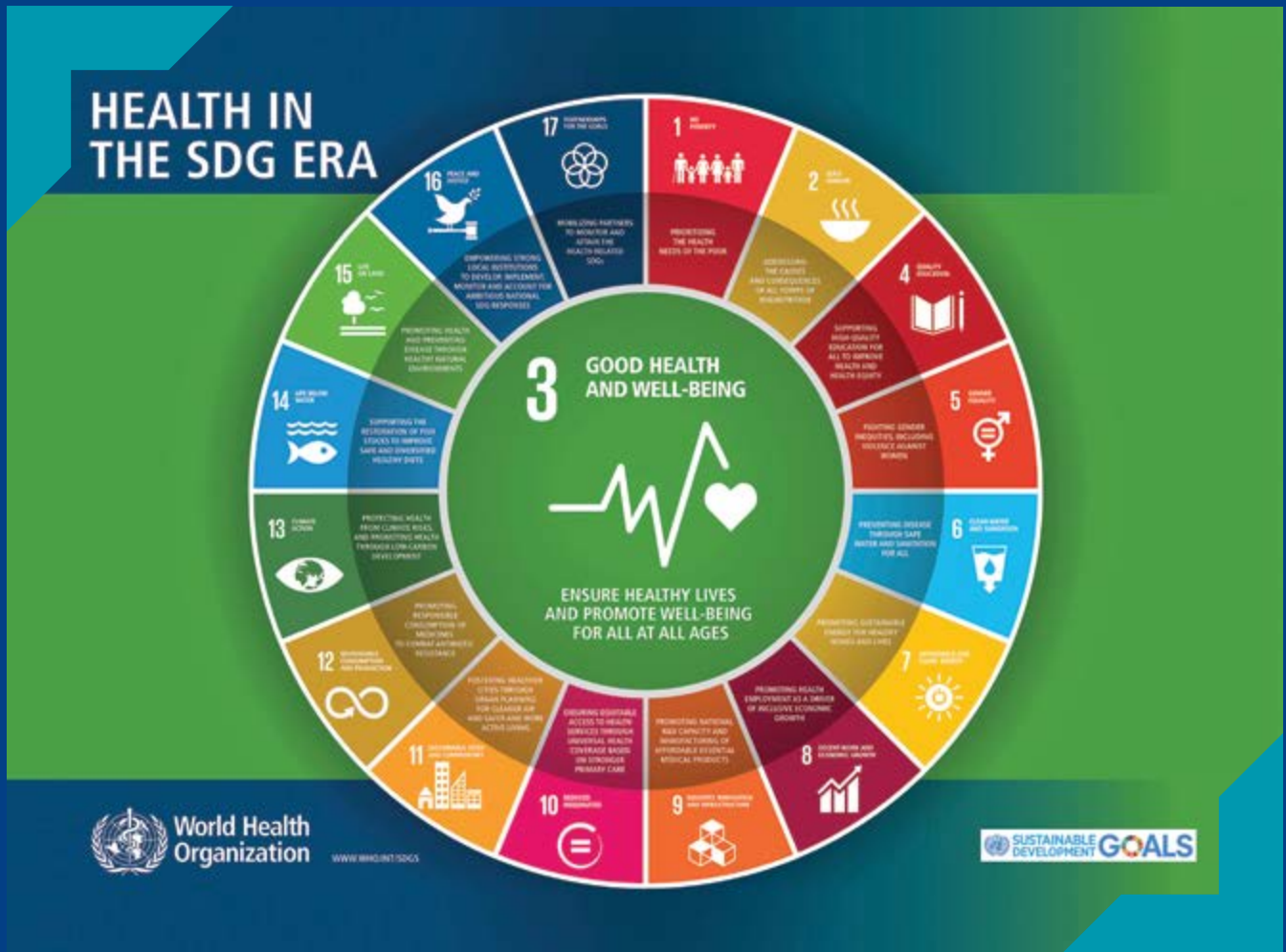




THE UNIVERSITY OF
MELBOURNE

Melbourne School of Population and Global Health



2015 - 2017



Welcome



THE UNIVERSITY OF
MELBOURNE

Wominjeka

Hoan nghênh خوش آمدید

Bienvenidos 환영합니다

We acknowledge and pay respect to the Wurundjeri people, the Traditional Owners of this land.



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Welcome from the Head of School, Professor Terry Nolan AO



When the School of Population Health began in 2001 – the first school of its kind in Australia – our vision was to make a difference in the population and public health sphere. We wanted to build on the assets of our University to advance public health in communities nationally and internationally, with a strong focus on indigenous peoples.

As our structure has been consolidated and as the School has grown and matured, we have worked towards our goal by attracting new staff with new discipline strengths who uphold that same vision. Recent exemplars include Professor Peter McDonald who has established a Demography Unit within the Centre for Health Policy, and Professor Peter Butterworth in the Centre for Mental Health whose research interests are in the social causes and consequences of common mental disorders.

Professor George Jelinek has established the Neuroepidemiology Unit in the Centre for Epidemiology and Biostatistics. He is leading research into the potential for lifestyle-based preventive medicine approaches to reduce the disease burden of multiple sclerosis, and other neurologic conditions.

The School also welcomed Professor Brian Oldenburg as Director of the Centre for Health Equity and as Chair of Non-Communicable Disease Control. Professor Oldenburg's research focuses on health policy and the prevention and control of 21st century health issues such as heart disease and diabetes. He has established a whole new program in non-communicable diseases.

Globally-respected academic and health economist Professor Barbara McPake has become Director of the Nossal Institute for Global Health and she has worked tirelessly to reinforce the Institute's focus on health systems and health financing. Professor Philip Clarke joined us from the Sydney School of Public Health establishing a rigorous health economics platform and has recently become Director of the Centre for Health Policy.

In 2015, the work of Professor Alan Lopez AC at our School was recognised with a grant from Bloomberg Philanthropies and the Department of Foreign Affairs and Trade. Bloomberg has made a \$100 million global commitment over four years to fund the Bloomberg Philanthropies Data for Health Initiative that will build reliable health data to direct effective health programs and policies in developing countries. Professor Lopez's service and achievements in improving public health internationally were further recognised with the award of a Companion (AC) in the General Division of the Order of Australia in 2016. He is leading the collection and assessment of this data that has the potential to make a very real difference to people in the world's poorest nations.

One of our biggest programs across the School in the past few years has been the Ten to Men study led by Professors Jane Pirkis and Dallas English. This project established an Australia-wide cohort study of the health and lifestyles of Australian males aged 10 to 55 years. Looking at the social, economic and lifestyle factors that impact on the health and wellbeing of Australian males at different stages of life, Ten to Men has provided an invaluable resource for improving the health of men and boys.

Similarly, The First 1000 Days Australia project, led by Professor Kerry Arabena,

aims to provide a coordinated, comprehensive strategy to strengthen Aboriginal and Torres Strait Islander families so they can address their children's needs from preconception to two years of age. The work recognises the importance of the first 1000 days of life from conception in laying the foundation for future health and wellbeing. In a new collaboration with Save the Children Australia, the project brings together Aboriginal and Torres Strait Islander Elders, researchers, community members, front-line workers and policy makers to make a collective impact.

MSPGH plays a key role in the development and implementation of the Melbourne Clinical and Translational Science platform (MCATS). MCATS is a collaborative research platform that supports health and clinical research including the design of clinical trials and quantitative studies. The initiative provides coordinated access to Biostatistics, Health Economics, Health Informatics and research governance with workshops and training available within these fields.

Professor Hugh Taylor, an internationally-renowned ophthalmologist, is working in the Indigenous health arena with a focus on improving Indigenous eye health. The work of Professor Taylor and his team has shone a spotlight on action to address the dire state of indigenous eye health and is pointing the way to initiatives and recommendations to improve this in indigenous communities. This work has generated new investment by the Australian Government to help eliminate diseases, such as trachoma, and to increase access to eye health services for Aboriginal Australians.

The School continues to update and review its teaching content to ensure it is relevant and responding to current and future population and global health

issues. The principal Master of Public Health degree has been restructured and enrolments continue to rise, complementing a suite of specialist graduate coursework programs in biostatistics, epidemiology, sexual health and health informatics and digital health. Students come from diverse backgrounds and we feel this has many benefits in the way in which students learn from each other.

On behalf of the University as a whole, we have introduced a Master of Ageing. This wholly-online degree brings together teaching staff and researchers from faculties across the University and engages with a range of community sectors where ageing is an important issue. From technology and ageing and the economics of ageing to end of life issues and the ethics of ageing, the program recognises the urgent need to understand the economic, social and political implications of a world where, by 2050, one-quarter of the population will be aged over 60 years.

We are also working to build our alumni program and our Student Society continues to be a vibrant and active element within our School. The annual end of year conference where our Master of Public Health students present the results of their research projects is always an impressive showcase that highlights the School's solid reputation, our many partnerships and collaborations, and our significant and tangible contributions in the field of population and global health.

The University of Melbourne

Established in 1853, the University of Melbourne is a public-spirited institution that makes distinctive contributions to society in research, learning and teaching and engagement. It is consistently ranked among the leading universities in the world, with international rankings of world universities placing it as number 1 in Australia and number 32 in the world (Times Higher Education World University Rankings 2017-2018).

Faculty of Medicine, Dentistry and Health Sciences

At ninth place on the Times Higher Education (THE) 2018 rankings for clinical, pre-clinical and health disciplines, the Faculty of Medicine, Dentistry and Health Sciences attracts some of the best and brightest minds in Australia and overseas – training excellent clinicians and producing high-impact research that makes a real difference to people's lives.

About Our School

The Melbourne School of Population and Global Health is a respected leader in the field of public health education, research and knowledge exchange.

We are made up of four centres and one institute – the Centre for Epidemiology and Biostatistics, the Centre for Health Equity, the Centre for Health Policy, the Centre for Mental Health and the Nossal Institute for Global Health. The School also incorporates two partnership groups – the Global Burden of Disease Group and the Vaccine and Immunisation Research Group (VIRGo).

Since its inception in 2001, the School has grown rapidly in size, scope and reputation and has consistently attracted some of Australia’s leading academics and researchers who bring considerable skills, insights and expertise.

We continue to attract increasing levels of competitive funding from governments (particularly the National Health and Medical Research Council) and from a range of renowned philanthropic organisations and individuals, such as the Bill & Melinda Gates Foundation and Bloomberg Philanthropies.

We are forging collaborations with entities such as the World Health Organization, Save the Children, Grand Challenges Canada, the Shanghai Centre for Disease Control, the Pasteur Institute and Department of Health in Vietnam, the Public Health Foundation of India and the International Association for Suicide Prevention.

The quality of MSPGH research is confirmed by the Academic Ranking of World Universities (Shanghai Jiao Tong) 2017. The University of Melbourne maintains its place as the top-ranked Australian university and a global ranking of academic subjects by the Shanghai Consultancy placed the University second in Australia and 21st in the world in Public Health.

In addition, our researchers have had work published in a prestigious titles including The Lancet, Nature, the New England Journal of Medicine and the Journal of the American Medical Association.

A restructure completed in late 2014 cemented the School’s focus on key areas of population and global health that are relevant now and that will have tangible impacts on the health of national and international communities into the future.

MELBOURNE SCHOOL OF POPULATION AND GLOBAL HEALTH

CENTRE FOR MENTAL HEALTH	CENTRE FOR EPIDEMIOLOGY AND BIOSTATISTICS	CENTRE FOR HEALTH EQUITY	CENTRE FOR HEALTH POLICY	NOSSAL INSTITUTE FOR GLOBAL HEALTH
Global and Cultural Mental Health	Allergy and Lung Health	Evidence and Child Health	Demography and Ageing	Maternal, Sexual and Reproductive Health
Mental Health Policy and Practice	Biostatistics	Gender and Women’s Health	Evaluation and Implementation Science	Disability Inclusion for Health and Development
Population Mental Health	Breast Cancer	Health Humanities and Social Sciences	Health Economics	Governance and Finance
	Colorectal Cancer	Indigenous Studies	Law and Public Health	Education and Learning
	High Dimensional Analytics	Non-Communicable Disease Control		Nossal Institute Ltd
	Male Health			
	Modelling and Simulation			
	Neuroepidemiology			
	Sexual Health			
	Twins Research			
	Australia			

Partnership Groups:

- Global Burden of Disease Group
- Vaccine and Immunisation Research Group

School Snapshot

The School hosts four prestigious Centres for Research Excellence:



Centre for Research Excellence in Optimising Bowel Cancer Screening

Centre for Research Excellence in Healthy, Liveable & Equitable Communities

Centre of Research Excellence in Infectious Diseases Modelling to Inform Public Health Policy, and the Centre of Research Excellence in Twin Research.

Award courses offered:



Doctor of Philosophy (Research)

Master of Philosophy (Research)

Master of Ageing

Master of Biostatistics

Master of Epidemiology

Master of Public Health

Master of Science (Epidemiology)

Certificate/diploma programs in:



Ageing

Biostatistics

Health informatics and digital health

Sexual health

Travel medicine

Tropical medicine and hygiene

QUICK FACTS

STUDENT ENROLMENTS

Student enrolments (headcount):
382 (2012), 712 (2017) +85%

Student enrolments (headcount)
Master of Public Health:
325 (2012), 528 (2017) +62%

RESEARCH HIGHER DEGREE

Research Higher Degree student
enrolments:
141 (2012), 169 (2016) +20%

Research Higher Degree student
completions:
11 (2012), 26 (2016) +136%

INCOME

Total income:
\$43.2 million (2012),
\$68.44 million (2016)

Research income:
\$28.0 million (2012),
\$34.7 million (2016), +33.5%

RESEARCH PUBLICATIONS



2012: 653 2016: 945 (+45%)

STAFF PROFILE



279 (2017) academic 23 professional 43

GENDER PROFILE Academic staff (FTE)



female: 64.6%

male: 33.4%

Our Learning and Teaching



“We make a significant contribution to training the public health workforce in Australia and internationally.”

– Associate Professor Rosemary McKenzie, Director of Teaching and Learning and Deputy Director of the Centre for Health Policy

Teaching and learning are key elements of the School’s mission and the School offers five full masters graduate coursework programs. The Master of Public Health has over 500 enrolments while the on-campus Master of Biostatistics and the online Master of Ageing are newer programs developed in response to changing community, demographic or health needs globally.

“With the Faculty of Engineering and their Health Information Systems Department, we’ve also recently established a Graduate Certificate in Health Informatics and Digital Health,” says Professor Rosemary McKenzie (pictured).

“The field of digital health is rapidly changing. Consumers seek health information online and our health system and health service planning is now based on digital data or digitally-stored data. It’s an exciting area that the School must be involved in. With each of these innovative programs we are directly responding to a world in transition.”

The School also offers a Master of Science (Epidemiology), a Master of Epidemiology, an intercalated Doctor of Medicine – Master of Public Health, a Graduate Certificate in Sexual Health, and a Diploma of Tropical Medicine and Hygiene. In 2018, an Honours program for the Bachelor of Biomedicine and the Bachelor of Science will be offered within the School and, as part of an ongoing process of curriculum review and development, the School recently developed a subject called Indigenous Health in a Global Context.

“This feeds into the growing understanding around the world that Indigenous peoples in many countries suffer similar barriers in access to healthcare. They can also face the same challenges to achieving good health status because of the marginalised status of Indigenous peoples or due to the cultural context in which the health of Indigenous peoples is experienced,” says Professor McKenzie.

A new breadth subject, Our Planet Our Health, is being introduced in collaboration with the School of Veterinary Science and The Peter Doherty Institute for Infection and Immunity. It examines the interface of human and animal health in an ecological context and the intertwining of the human and natural worlds.

The School’s teaching staff includes 50 subject coordinators for over 60 subjects with world-renowned researchers bringing students a research-informed learning experience. We have more than 600 graduate enrolments and around 25 per cent of enrolments are for international students. The School has exchange relationships with universities and public health organisations in locations including Sweden and Canada, and is building relationships with India.

The School delivers approximately 25 short courses locally and internationally.

“We are keen to respond to future demand for ‘bite-sized’ educational experiences,” explains Associate Professor McKenzie. “People who are mid-career, on the move and juggling family and workplace demands may not want to do a two-year Masters degree. But they may want to do something short and intensive that meets a skill deficit and gives them a springboard to the next level of their career or to assume a new role. As a graduate School, we are ready to respond to that demand.”

Alumni Profiles

Melbourne School of Population and Global Health graduates are sharing their knowledge and expertise and continuing their professional development.

Cindy Tran, Bachelor of Biomedicine with a major in Pathology and Master of Public Health

Graduated: B.Biomed 2014 and Master of Public Health 2016, Consultant at Australian Healthcare Associates (AHA)

The work: I am part of the evaluation team working on health program evaluation for state and federal government. I have been involved with literature reviews, developing methods for evaluation and consulting with clients.

Professional highlights: A highlight has been travelling across Australia consulting with state governments and stakeholders.

School highlights: In my final semester, I worked at Moreland City Council producing a background report on the issue of food security within the municipality. The work was crucial in the endorsement of the Moreland Food System Strategy in early 2017.

Keryn Bird, Master of Public Health

Graduated: 2015, Project Officer at The Royal Australasian College of Physicians

The work: My role is within the Office of the Dean working on digital resources and eLearning projects to enhance the professionalism and performance of specialist physicians.

Professional highlights: A great highlight in my previous role was travelling to Alice Springs for a health education seminar that I helped develop. Women from the local and wider community came to learn more about their health and we saw the incredible work of indigenous health organisations.

School highlights: Working with and learning from people of so many diverse geographical, cultural and educational backgrounds provided me with a fresh perspective on many health, social and cultural issues.

Tan Nguyen, Master of Public Health

Graduated: 2015, Director and Oral Health Therapist, Coburg Hill Oral Care

The work: I am engaged in clinical education and teaching within the Bachelor of Oral Health program at the Melbourne Dental School and I have a clinical role in the public and private sector.

Professional highlights: My highlight has been the honorary appointment at Deakin University which has created a significant opportunity to develop my academic career.

School highlights: A highlight has been the friendships I have made throughout the program and the academic stimulation our lecturers create to challenge our thinking.

Joanna Williams, Master of Public Health

Graduated: 2017, Director of Strategy, Bits and Bods

The work: My role covers organisational policy and governance, fundraising and external relations in an organisation that starts inclusive conversations with teens about sex, bodies and relationships.

Professional highlights: It's a joy to support and facilitate young people sharing their stories and empowering teens to make more informed decisions about sex, bodies and relationships.

School highlights: Volunteer opportunities changed the direction of my career. Being a rapporteur at AIDS 2014 was a life-changing moment. Running our student association was another highlight – it was inspiring to work as part of a team that provided students with opportunities to work with each other, alumni, staff and public health organisations.



Graduation ceremony 2017

Our Research



“This a very diverse School with a comprehensive population health focus. Our research has immense breadth.” – Professor Jane Hocking, Chair of the Research Committee and Head of the Sexual Health Unit, Centre for Epidemiology and Biostatistics.

Our research is about understanding the determinants of health and how we can contribute to health improvement for all populations, locally and globally, especially those who are most disadvantaged. To meet these challenges, the School’s research strengths are focused on four priority areas. These are:

Inequalities, disadvantage and effective health care – research aims to reduce the gap in health and wellbeing due to disadvantage through evidence-based policy and health care. Projects include a national study of healthcare complaints, alcohol management plans in Indigenous Australia, disability inclusion for health and development, evaluation of novel strategies to reduce the burden

of rheumatic heart disease in remote Indigenous communities, and determining how socio-economic position influences survival after diagnosis with cancer.

Data science, health metrics and disease modelling – research combines the power of advanced computation, data linkage and biological discovery to reduce the impact of current and burgeoning disease and to prepare for future health threats. Projects include the development and application of verbal autopsy methods, examining the expenditures and prices of antihyperglycemic medications in the US, social connectedness, quantifying health and tobacco-attributable mortality, and predicting the likely impact of emerging infectious diseases to inform proportionate response.

Screening and early detection of disease – research aims to find and treat diseases and disorders early to reduce their impact on health. Projects include using mammograms to predict the risk of future breast cancer, estimating the extent of ‘over-diagnosis’ in the Australian BreastScreen program (an ‘over-diagnosed’ cancer would not have been diagnosed without screening), using DNA tests and lifestyle factors to estimate personal colorectal cancer risk, developing a safe and acceptable self-collection model for cervical cancer screening, and predicting future allergy and lung health.

Prevention and management of non-communicable diseases, including cancer, and promotion of mental health – evidence-based research and programs contribute to preventing and alleviating some of the world’s most common, debilitating and burdensome health issues. Projects include the Victorian Suicide Register Project, what workplaces can do to improve mental health, the STOP-MS Study, the Kerala Diabetes Prevention Program, and predictors and consequences of allergies that impact on children getting a healthy start to life.

Professor Hocking says many of the School’s research programs are directly influencing health policy and practice.

“We are not about research for research’s sake. We address gaps in the evidence and conduct research that furthers our understanding about health and disease. Our research is driven by needs in policy and practice,” says Professor Hocking.

“We are cognisant of the current health priorities, ensuring that our research is relevant to the population needs and concerns. Our research covers the translational spectrum from discovery research, observational studies and clinical trials through to translational research generating new policy and practice.”

How Our Research is Making a Difference



The Melbourne School of Population and Global Health is focused on translating research into effective programs that benefit the health of Australians and people across the world.

Man Up – Centre for Mental Health

The Centre for Mental Health led a team in designing a gold-standard evaluation of the documentary TV series, *Man Up*, which premiered in Australia in October 2016. The three-part series was funded by global men's health charity, the Movember Foundation, and aimed to challenge the taboos around male mental health and the way these are shaped by expectations associated with masculinity. The evaluation involved 354 men, half of whom viewed *Man Up* and half of whom saw an unrelated 'control' documentary on brain training. More than 80 per cent of men who saw *Man Up* said it triggered a change for better in their lives and 87 per cent felt they understood more about the pressures on men to conform to a 'man code' of behaviour.

The Kerala Diabetes Prevention Program (KDPP) – Centre for Health Equity

India has more than 60 million people with type 2 diabetes mellitus and this is predicted to increase by nearly two-thirds by 2030. The US NIH and NHMRC-funded Kerala Diabetes Prevention Program is a cluster randomised controlled trial of a community-based and peer-led lifestyle intervention program to prevent diabetes. Just over 1000 people at high risk of diabetes from 60 communities throughout the state of Kerala in India were recruited to the study. Individuals from 30 communities took part in a group-based peer support program as well as other activities in their local communities to reduce their diabetes risk. Compared to individuals in the control communities, many of the people in the intervention program have significantly reduced their risk of diabetes and heart disease.

Heart attack deaths at Christmas – Centre for Health Policy

Some research indicates Christmas brings a higher risk of death from heart attack. Most evidence of this comes from a US study conducted over a decade ago. A Centre for Health Policy study examined whether the findings hold true in different populations and conditions. An analysis of 25 years of death records from New Zealand showed four per cent more cardiac deaths during Christmas holidays. The study appeared in the *Journal of the American Heart Association* and 100 newspapers around the world.

Predicting future breast cancers – Centre for Epidemiology and Biostatistics

The Centre for Epidemiology and Biostatistics has discovered a new way to interpret mammograms that could transform routine breast screening and save lives. Led by Professor John Hopper, the new technique makes it possible to estimate which women are more likely

to develop breast cancer in the future. The process analyses the patterns and amount of brightness in a mammogram and is a better predictor of a woman developing breast cancer in the future than all known genetic factors discovered over the past 20 years. Researchers are now working on digital automation to make the technique available for screening services.

Rapid Assessment of Disability in Fijian schools – Nossal Institute for Global Health

This initiative looks at ways of measuring disability so school systems can accurately count children with disabilities and work out how much extra funding is needed to support their integration into the mainstream education system. The research considers complexities such as what constitutes disability, how to measure different levels of functioning and when additional resources are required.

Introducing verbal autopsy to Myanmar – Bloomberg Philanthropies Data for Health Initiative

Bloomberg Philanthropies Data for Health Initiative researchers have been working in Myanmar to strengthen the local civil registration and vital statistics (CRVS) system. Over half of the deaths recorded in the country have no doctor-certified cause, leaving health services and policy makers with no accurate idea of what is killing people and no reliable data on which to prioritise healthcare spending and prevention. The project (pictured) introduces verbal autopsy to midwives, with a computer tablet and an algorithm that can accurately diagnose cause of death without the expertise of a doctor.

Centre for Epidemiology and Biostatistics



“We are trying to work out who is going to get a disease and how you can prevent that disease occurring. Our philosophy is that prevention is good but can be better if you can target prevention activities at people who most need it.” – Professor Mark Jenkins, Director of the Centre for Epidemiology and Biostatistics

The Centre for Epidemiology and Biostatistics is at the forefront of a preventative health revolution, working towards providing solutions to global public health challenges. Big data, changing infectious diseases patterns and multi-disciplinary collaborations are part of the Centre’s work to transform the way in which public health disciplines are researched and taught.

The Centre’s units are:

Sexual Health – Led by Professor Jane Hocking, the unit conducts research to enhance the population’s sexual health. It has a particular focus on investigating strategies to reduce the burden of chlamydia, the most commonly diagnosed bacterial sexually transmitted infection, affecting up to 5% of young adults.

Colorectal Cancer – Led by Professor Mark Jenkins (pictured above with team), the unit is looking at how the effectiveness of colorectal cancer screening can be increased, how prevention can be targeted at people most at risk and the best way to clinically manage people with a genetic predisposition.

Breast Cancer – Professor John Hopper leads the unit and helped develop the Australian Breast Cancer Family Study. It is part of the international Breast Cancer Family Registry Cohort that provides research to investigate the genetic epidemiology of breast cancer.

Allergy and Lung Health – Led by Professor Shyamali Dharmage, the unit is conducting research into the genetic, molecular and environmental epidemiology of allergies, asthma and chronic obstructive pulmonary disease.

Twins Research Australia – With an extensive history over more than 35 years, the unit led by Dr Kate Murphy, is recognised as a world leader in facilitating and leading twins research in institutes and hospitals nationally and globally. This brings over 70,000 Australian twins and researchers together for vital health research that benefits everyone. Australian twins are invited to become members.

Male Health – Ten to Men has been a flagship project of the Male Health Unit, led by Professor Dallas English and Professor Jane Pirkis of the Centre for Mental Health. The Unit has built a national data resource of a cohort of boys and men recruited from age 10 to 55, to support research into the determinants of male health.

Biostatistics – In the modern world of ‘big data’, researchers in population health and clinical medicine need to make sense of large amounts of data from a range of sources. Led by Professor Julie Simpson (pictured), the Unit has developed an integrated program of methodological and collaborative research as well as providing statistical training to build a skilled research workforce.



Modelling and Simulation – Led by Professor Jodie McVernon, the unit considers the complex biological and social systems underlying infectious diseases epidemiology to inform effective health policy for disease control. This interdisciplinary group includes experts in clinical medicine and public health, mathematics and computer science.

High-dimensional Analytics – Led by Dr Enes Makalic, the unit provides statistical and computing expertise and develops novel techniques for the analysis of modern, complex and extensive data sets, including genomic data and image analysis of mammograms.

Neuroepidemiology – Led by Professor George Jelinek, the unit leads research into lifestyle-risk factor modification as a strategy for improving physical and mental health outcomes for people with multiple sclerosis internationally. The multidisciplinary team is engaged in longitudinal studies to identify lifestyle and environmental exposures associated with preventing disease progression and disability, and optimising health-related quality of life.

Teaching and Learning – Led by Dr Melissa Russell, the unit was established in 2014. It reflects an increased emphasis on teaching within the Centre and aims to enhance the coordination, quality, efficiency of teaching and learning and to develop new opportunities and collaborations in teaching and learning.

The Centre is also part of the Melbourne Clinical and Translational Sciences Platform (MCATS) with Professor Julie Simpson and Ms Sabine Braat leading the biostatistics node of this important collaborative initiative, ensuring clinical research at University of Melbourne affiliated hospitals and institutes is of the highest quality in terms of study design and statistical analysis. Access to

biostatistics expertise is an important element of MCATS efficiency and effectiveness. The Centre’s involvement is expanding with new staff appointments and in the last 12 months, have provided statistical expertise for over 20 NHMRC grant applications, were commissioned by Department of Health groups to advise on the planning of large trials (studio work-ups), and given statistical advice to over 40 researchers from 10 different hospitals and institutes.

Meet Professor Mark Jenkins, Director of the Centre for Epidemiology and Biostatistics



“My first experience of epidemiology was during my honours year of my science degree. It was gratifying that you could answer big questions about what was happening in the population by looking at patterns in large data sets; that you could use the data to test hypotheses of possible causes of disease, or ways to prevent it in the future.”

Professor Mark Jenkins (pictured) began his epidemiology career during his honours year in pharmacology when he studied asthma mortality trends in Australia.

“Standard pharmacology research involved a lot of benchwork but I found it more interesting that, with epidemiology, you could answer questions about human health in the population by analysing large data sets and that could give you clues on how disease could be prevented,” he says.

Professor Jenkins completed his PhD on the genetic epidemiology of asthma at the University of Melbourne in 1994. He then took up a post-doc at the Fred Hutchinson Cancer Research Center in Seattle to begin his career studying the genetic and environmental causes of colorectal cancer.

Since then, Professor Jenkins has spent more than 15 years designing, conducting and analysing studies on colorectal cancer, including how best to prevent the disease and how to calculate individual risks.

A professional highlight of his career so far has been his research into Lynch syndrome, a genetic predisposition affecting approximately 80,000 Australians that puts them at a very high risk of cancer of the bowel and uterus and some other cancers. Identifying people with Lynch syndrome is important as they require intensive screening to reduce their risk of dying from cancer. Research is underway to identify new ways of identifying people with the syndrome as well as new methods of reducing their risk of cancer.

Under his leadership, the University of Melbourne is now the epicentre of the International Mismatch Repair Consortium, an international collaboration established to investigate Lynch syndrome. Over the past three years, pedigrees of more than 6000 families from more than 20 countries have been sent to the University’s investigators for analysis. This is now the world’s largest resource for the study of Lynch syndrome.

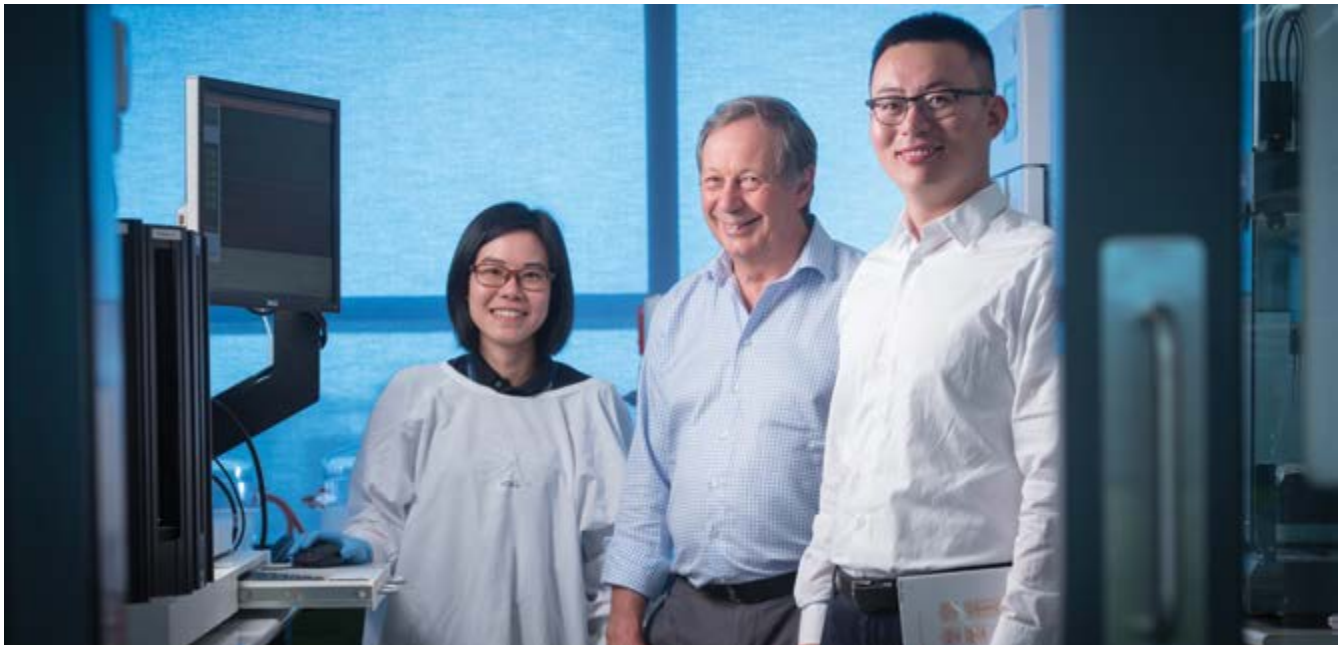
“Most of the research into cancer risks for people with a genetic syndrome was conducted without the statistical sophistication required to properly analyse the data, and so it was providing incorrect or hyper-inflated estimates of cancer risk. My epidemiological skills

allowed me to answer some clinically important questions with greater rigour, providing accurate risks of cancer and leading to an improvement in understanding the disease,” says Professor Jenkins.

“The research I have led has found that the risks weren’t nearly as high as everyone thought – it was thought it was almost certain people with Lynch syndrome would get cancer. But we determined it to be less than half. So, while some people would develop the disease, as many more would not, which suggests there must be other factors that dictate who gets cancer and who doesn’t.”

Professor Jenkins is Chief Investigator of a NHMRC Centre of Research Excellence: ‘Reducing the burden of colorectal cancer by optimising screening’. He is also Principal Investigator of the NIH funded international collaboration, the Colon Cancer Family Registry.

The Australian Twin Registry



From the puzzle of growing pains and the mysteries of brain ageing to the role played by dental health in a child's general wellbeing and back pain, studies involving twins cover diverse aspects of health and medical research.

Twins Research Australia (TRA) is a national research resource for medical and health research communities. Established in 1981, it is recognised as a world leader with a 35-year history of excellence.

Based at the Centre for Epidemiology and Biostatistics, TRA manages the Australian Twin Registry which is one of the oldest, largest and most scientifically-productive volunteer twin registries in the world. TRA works with researchers across the globe to fast-track research and to discover health insights. This has enabled TRA to support more than 120 researchers to conduct 230 studies.

TRA is funded by the federal government's National Health and Medical Research Council as a Centre of Research Excellence in Twin Research. It is led by Director Professor John Hopper (pictured) who is supported by an experienced research and management team.

Twin research is uniquely valuable for understanding how genes, behaviour and environment affect health and wellbeing. By using the powerful twin designs, researchers have contributed to important findings in epilepsy, breast cancer, melanoma, smoking and bone and dental health. Obesity, HIV, dementia, autism, temperament in late childhood and mid-adolescence atrial fibrillation are also areas under investigation using members of the Australian Twin Registry.

TRA's membership consists of identical and non-identical twin pairs of all ages and states of health. This unique data repository of more than 75,000 twins and their families – 20 per cent of Australia's twin population – volunteer to participate in research studies throughout their life.

Research with twins expedites transformative insights into our understanding of health and disease for the whole population. With advances on 'omics' technologies, twin research is increasingly playing an important role in understanding the interplay between genes and environment.

Recently, PhD student, Shuai Li, has been studying epigenetics involving twin pairs. Epigenetics is the study of how changes to our DNA can turn genes 'on' or 'off'. By comparing the level of epigenetic differences in identical twins versus non-identical twins, researchers could estimate the contributions of both genes and environment in the womb to future health. The research showed that risk of breast cancer begins in the womb from TRA combining big data on the epigenome from six twin and family studies from Australia and around the world.

Identifying Genetic Markers that Help Fight Cancer Before It Begins or Detect It Early Before It's Too Late



“Everyone differs genetically from each other and a small proportion of those differences seem to be related to disease risks. Some of these differences are associated with colorectal cancer risk. We think now that it’s possible to determine which people are more likely and which are less likely to develop colorectal cancer by examining their DNA from saliva or blood.”

– Professor Mark Jenkins, Director of the Centre for Epidemiology and Biostatistics

Professor Mark Jenkins and his team have analysed 45 genetic variants that indicate increased risk of colorectal or bowel cancer. These are known as single nucleotide polymorphisms or SNPs – single alterations in DNA bases that vary between individuals.

Bowel cancer is the second most diagnosed cancer in Australia, after prostate cancer. It is highly preventable and curable if detected early by screening, so getting the right people screened at the right time is essential to reduce deaths from this disease.

Professor Jenkins and his fellow researchers have assessed the feasibility of a DNA test to classify people at risk of colorectal cancer. They are now working with a commercial partner to develop the test that estimates risk from a cheek swab test. The acceptability of the test is currently being trialled in general practice.

“It’s an easy and safe test to do and I think it might eventually be seen the same way as a normal pathology test to identify risk of other diseases. Just as you go to the GP now and have a blood test to check your cholesterol, this DNA test could become routine to check your risk of getting bowel cancer in the future,” says Professor Jenkins.

“If the test shows you are more likely to develop colorectal cancer then screening could be started at a younger age, or instead of doing the faecal occult blood test (FOBT), your specialist may suggest a colonoscopy.

“There is no doubt that this test can identify high and low risk people, but we are now assessing the feasibility and acceptability to patients and clinicians, as well as improving the test by adding more genetic markers to it.”

Professor Jenkins and his team are also developing a new research program into improving participation rates of Australia’s National Bowel Cancer Screening Program, which offers highly-effective free testing for early signs of bowel cancer using the home FOBT kit. In Scotland, 60

per cent of people do this test. In Australia participation rates are much lower at 37 per cent, meaning many people are not reducing their risk of bowel cancer.

“We can prevent colorectal cancer but people don’t want to do the home FOBT. For every 10 per cent increase in participation we estimate we could save between 200 and 400 lives a year in Australia,” says Professor Jenkins.

“There is enormous opportunity to prevent colorectal cancer deaths by coming up with ways to encourage people to do the FOBT. We are on the cusp of preventing a lot of disease if we can find ways to increase participation.”

Centre for Health Equity

In CHE, we work with communities and institutions collaboratively to create and exchange knowledge that improves the social, economic and environmental conditions for equity, health and wellbeing.
– Associate Professor Richard Chenhall, Acting Director of the Centre for Health Equity.

At the Centre for Health Equity, we work with health professionals, policy makers, consumer groups and the broader community to create and exchange knowledge for health equity and wellbeing. Work reaches into households, communities and institutional settings – anywhere that age, income, education, place, disability, race, gender and other differences have an impact on people's access to health and their wellbeing.

Centre staff also teach and coordinate subjects across undergraduate and postgraduate programs in the School. In the Masters of Public Health, staff are responsible for streams in health social science, gender and women's health and Indigenous health. The focus is on pedagogical approaches that emphasise practice-based learning strategies to support students to develop knowledge and skills in health equity. The Centre's units are:

Evidence and Child Health – In 2016, researchers detailed the long-term impacts on children and families of the Victorian 2009 bushfire emergency. Suggestions on minimising impacts in future emergencies have had national and international reach. The unit, led by Associate Professor Lisa Gibbs (pictured), also incorporates Jack Brockhoff Child Health and Wellbeing and Public Health Insight.

Gender and Women's Health – Led by Professor Anne Kavanagh, the unit has looked at disability as a major public health challenge. The unit also incorporates sexual and reproductive health, housing and the built environment, cancer prevention, work, gender and mental health and the WHO Collaborating Centre in Women's Health.



Health Humanities and Social Sciences – Alcohol and other drugs, ethics, historical demography and health social sciences are a focus led by Associate Professor Richard Chenhall. Recently, Professor Lyn Gillam received an ARC grant to look at ethics and consent related to children with serious medical problems.

Indigenous Health Equity – The First 1000 Days Australia led by Professor Kerry Arabena examines the experiences of Aboriginal children and mothers from pre-conception until two years of age and how these impact lifetime health. Unit projects include indigenous eye health, healthy country, healthy people, addressing family violence and overcoming barriers to cervical screening.

Indigenous Studies – Led by Professor Marcia Langton AM, the unit has examined alcohol as a health issue in Aboriginal communities and how policies and controls can address this. The unit also researches Agreements with Indigenous People and Cultural Heritage, Material Collections and Digital Technology.

Non-Communicable Disease Unit – Professor Brian Oldenburg and his team have researched different ways to improve chronic disease prevention and management; to understand pathways to causation and outcome; to improve the uptake of evidence into policy and practice, and to build global research capacity in this field. Projects have researched alcohol and other drugs, the prevention and control of NCDs in India and the effectiveness of a virtual health coaching program to improve self-management of type 2 diabetes.

McCaughy VicHealth Community Wellbeing – Until early 2017, the Centre was home to this policy research group, led by Professor Billie Giles-Corti, that built knowledge about the social, economic and environmental determinants of mental health and wellbeing. The unit worked closely with VicHealth and placed a strong emphasis on research dissemination and community engagement. Key research areas included social inclusion and connectedness, determinants of mental health and community wellbeing, community wellbeing indicators, trends and outcomes, and healthy and sustainable environments. The unit's mission was 'to be a catalyst for knowledge which strengthens the foundations of healthy, just and sustainable communities and builds social, emotional and spiritual wellbeing'.

Meet Associate Professor Richard Chenhall, Acting Director of the Centre for Health Equity



“Big data is vital to designing better interventions but so too is understanding people’s lived experience. Numbers, statistics and trends tell us a huge amount but we must also talk to people to understand how gender, race, sexuality and other social determinants of health can drive inequity. And it is often these individual stories that compel decision makers to create much-needed change.”

As an undergraduate at the University of Melbourne, Associate Professor Richard Chenhall considered further studies in psychology, economics and philosophy but was ultimately drawn to anthropology and its ethnographically-informed understanding of people and cultures.

While undertaking a Masters and PhD at the London School of Economics, Dr Chenhall returned to Australia to visit Benelong’s Haven, the first residential alcohol and drug treatment program controlled and operated by an Aboriginal Australian.

“With the program director Val Bryant’s support, I was invited to base my PhD on

the work of Benelong’s Haven so I returned later for an extended period of fieldwork, observing and participating in the centre’s activities and getting to know staff and residents. This gave me a great insight into the different approaches Aboriginal people have developed to deal with the problem of drug and alcohol abuse in their communities,” says Dr Chenhall.

In 2002, after a period teaching at the University of California Santa Barbara, Dr Chenhall accepted a position at the Menzies School of Health Research in Darwin, teaching into the Masters of Public Health while continuing his research into alcohol and drug use in Indigenous communities. Based in the Northern Territory until 2010 (apart from an 18-month period of research into alcohol self-help groups in Japan), Dr Chenhall extended his research into the social determinants of Indigenous youth.

Returning to his alma mater the University of Melbourne, Dr Chenhall has continued these research themes. One such project sees him working closely with Professor Marcia Langton on an ARC project documenting the impact of Alcohol Management Plans in northern Australia. He also teaches postgraduate level courses including medical anthropology, qualitative research in public health and community-based participatory research courses.

Dr Chenhall believes that his engagement with community is a vital aspect of the work he does, feeding into policy development that is equitable for marginalised communities, but also supportive of community action to improve the wellbeing of their members.

Dr Chenhall has led the Centre for Health Equity as Acting Director since mid 2017, succeeding Professor Brian Oldenburg, Director from 2015, who remains Chair of Non-Communicable Disease Control at the School’s Nossal Institute for Global Health.

A behavioural scientist, Professor Oldenburg (pictured right) began his working life as a clinical psychologist. For his PhD at the University of New South Wales he studied people with end-stage renal disease to understand the psychological and social impacts of this health problem.

“My focus became much more on how to improve the health and wellbeing of populations to prevent these kinds of conditions, rather than intervening with individuals to make more downstream clinical changes. As my career has progressed, I have also become more and more concerned about socio-economic health inequalities between different populations in our society,” says Professor Oldenburg.

In 1994, Professor Oldenburg became head of a new school of public health in Brisbane, an experience that he says ‘opened my eyes’ to the inter-disciplinary nature of public health and the different social, behavioural, public and clinical health sciences that are relevant to public health.

In 2006, he moved to Monash University and was Associate Dean (Global Health and International Campuses). During this time, he became more exposed to international research in countries such as India, China and South Africa.

At the Melbourne School of Population and Global Health, Professor Oldenburg’s research program focuses on health policy and the prevention and control of cardio-metabolic conditions such as heart disease and diabetes, and their mental health co-morbidities. He has extensive experience in research training and capacity-building programs in Australia and other countries, particularly in the Asia-Pacific and African regions. He acts as an advisor to the World Health Organization and to many other national and international NGOs and governments who seek his advice on public health, health systems and health policy issues.



The First 1000 Days Australia



“I’ve met young children in the Asia Pacific region and I knew their lives were completely compromised because they didn’t have access to things that other children have access to. I hold them in my mind and heart when I do this work – they are a powerful motivator.” – Professor Kerry Arabena, Director Indigenous Health Equity Unit

The First Thousand Days is a global movement that addresses child development in the first 1000 days of life from conception to age two. International research shows early intervention programs during pregnancy and in the early months and years of a child’s life have positive impacts on later health.

But for some Indigenous Australians, early intervention support for mother and baby is not always possible, leading to a child experiencing poorer health and cognitive development.

Professor Kerry Arabena (pictured) is working with healthcare workers, community organisations and governments to address the gap. Recently her team joined forces with Save the Children Australia to develop short courses that will become part of Save the Children Australia’s registered training organisation.

“We’re creating a new First 1000 Days Australia workforce,” says Professor Arabena.

“Currently that workforce is funded out of contracts and belongs to different departments. We are bringing these people together – perhaps a legal officer, a child protection officer, maternal and child health services and a speech therapist or mentor. We place their focus on preconception to age two and foster a high degree of innovation and integration for communities.”

Key areas of concern include the increasing number of children being placed in out-of-home care, high incarceration rates and the high propensity of being victims or perpetrators of violence and abuse across communities.

“By the end of 2017 there will be more children in the care of other people than at any other time in the history of the colonisation of this continent,” says Professor Arabena.

“The disenfranchisement of Indigenous children from their families and communities can limit their capacity to develop neurologically and impact on their early years at school – they are forever playing catch-up in a world not willing to wait for them.”

The research and learnings of the First 1000 Days Australia program are spreading to communities as far afield as Indonesia, Norway and Russia.

The team is working with the Sami people in Norway, Sweden and Russia and funding from the Australian Indonesian Centre is supporting round-table discussions to help Indigenous and tribal communities in Indonesia.

“The deep resonance of this work for Indigenous people around the world is tremendous,” says Professor Arabena.

“There are core issues to be addressed such as nutrition, giving children the best start in life with access to early life education, and supporting parents in their relationships so children are born to parents who are ready and prepared to provide the very best opportunities.

“Through the School and this program, we are responsible provocateurs and we want to make transformational change.”

Indigenous Eye Health



Since the 1970s, improving the state of Aboriginal and Torres Strait Islanders' eye health has been a work in progress for Professor Hugh Taylor AC. The renowned ophthalmologist began his career at the University of Melbourne studying medicine. He then trained in ophthalmology at the Royal Victorian Eye and Ear Hospital and focused on Indigenous eye health.

Early in his career, Professor Taylor (pictured) assisted the late Fred Hollows with a trachoma program. For two years they studied more than 60,000 Indigenous Australians and collected the country's first national data about the state of Aboriginal eye health.

Today, Professor Taylor, who leads the School's Indigenous Eye Health (IEH) program, is still committed to improving eye health in Indigenous communities and his efforts and those of the program are bearing fruit.

The gap in blindness in Indigenous communities has been drastically reduced since 2008 thanks to a Roadmap to Close the Gap for Vision initiative. The IEH is working with 18 regions that cover almost half of Australia's Indigenous population.

"At the beginning of the project, we found rates of blindness and impaired vision were up to six times higher than for non-Indigenous populations. This has now been halved," says Professor Taylor.

In 2015, the IEH launched the Check Today, See Tomorrow program with resources to raise the awareness of diabetes-related eye health and to encourage Aboriginal and Torres Strait Islander people with diabetes to get annual eye checks to reduce their risk of vision loss. Up to 98 per cent of vision loss and blindness from diabetes is preventable with early detection and treatment.

Professor Taylor's focus has also been on eliminating trachoma. The disease is the world's leading cause of preventable blindness and is caused by the bacterium *chlamydia trachomatis* which is spread by contact with infected eye secretions – usually on a person's hand or clothing.

Australia is the only developed country that still has trachoma and it is very much an Indigenous health issue but initiatives such as the 'clean faces, strong eyes' health promotion campaign are making a difference. The campaign includes surgery for in-turned eyelashes, antibiotic treatment, facial cleanliness and environmental improvement.

"Since 2008, rates of trachoma in children in outback communities have fallen from 21 per cent to 4.6 per cent. We are really seeing some striking progress but we still need to focus on the hot spots," says Professor Taylor.

"We can stop this if we as a community care. Trachoma is entirely preventable. Although it disappeared from white Australia 100 years ago, it could take another century to disappear from Indigenous Australia if we do not do something about it. We can't wait that long. All Australians have the right to sight. The time to act is now."

In implementing these major Indigenous eye health initiatives, the School is grateful for the support of major donors including the Harold Mitchell Foundation, Ian Potter Foundation, BB & A Miller Foundation, Aspen Foundation, Australian Government Department of Health, Cybec Foundation, CBM Australia and a number of generous individual and anonymous donors.

Centre for Health Policy

“On a research agenda, chronic disease and ageing are two areas we’re keen to continue our work in. We’ve done work in simulation modelling in diabetes and cardiovascular disease and the next area to look at is dementia and ageing and cancer. In many ways, they are connected. Getting some notion of interconnectedness about this, particularly around end-of-life care and resources, is very important.” – *Professor Philip Clarke, Director of the Centre for Health Policy.*

The Centre for Health Policy evaluates health policy at international, national, state and local levels and brings together clinicians, economists, implementation scientists, lawyers, managers, psychologists, sociologists and political scientists. The aim is to improve the ability to critically evaluate the performance and funding of health policy and health programs.

“The Centre for Health Policy is also the base for coordination of the Master of Ageing, a wholly-online, cross-faculty initiative hosted by the School. We have funding through the ARC Centre of Excellence in Population Ageing Research (CEPAR),” says Professor Clarke.

“We’re trying to understand what the long-term resource implications of an ageing population are and we are looking at evaluating various interventions. Simulation modelling is good at trying to sort out optimal treatment paths – it helps to tease out things that are hard to understand.”

Currently, the School is looking to establish a Cancer Health Services Research Unit, in partnership with the Victorian Comprehensive Cancer Centre, within the Centre for Health Policy. It will build new research capability and provide academic leadership for a new program of multidisciplinary cancer health services research, underpinned by health informatics.

The Centre for Health Policy is made up of the following units:

Evaluation and Implementation Science –

The unit, led by Professor Margaret Kelaher, focuses on generating evidence to inform better policy and practice. Research projects undertaken by the unit include identifying critical success factors for mammographic screening and the development of a framework for the evaluation of policies, programs and services that aim to improve Aboriginal and Torres Strait Islander peoples’ health and wellbeing.

Health Economics – The unit undertakes a range of economic evaluation, health systems research, simulation modelling and risk prediction, health inequality and methodological research. Projects include building a simulation model to improve cardiovascular disease risk prediction and treatment for Indigenous Australians and a study of the impact of Medicare Part D on income-related inequality in drug expenditure. The Unit is led by Professor Philip Clarke.

Demography and Ageing – This new unit is led by Professor Peter McDonald (pictured) and brings a significant concentration of leading world-class demographers to the University. The Unit will build on existing research including the work of Professor Lesley-Anne Hawthorne and her research on international migration patterns of the global health workforce.

Law and Public Health – Led by Associate Professor Marie Bismark, this Unit is an interfaculty initiative which spans the



School and the Melbourne Law School. A guiding question in much of the law and public health work is ‘how can law and regulation be used to improve population health and the quality of health care services?’ The unit trains that question on the most pressing health policy issues of the day to provide new and valuable information for policymakers.

The Centre is also part of the **Melbourne Clinical and Translational Science platform (MCATS)** Health Economics node led by Professor Clarke and supported by Dr Kim Dalziel, Dr An-Duy Tran and Ms Michelle Tew. MCATS is a collaborative research platform that supports health and clinical research including the design of clinical trials and quantitative studies. The initiative provides coordinated access to expertise including the very latest in Health Economics. The team supports researchers across the University of Melbourne and its affiliated hospitals and institutes by providing expert health economics advice in study design, data sources and economic evaluation methodologies. In the past year, we have contributed to 32 grant applications establishing collaborations across 11 hospitals and institutions, assisted in the planning of the study design and economic evaluation analysis for large Department of Health trials and have provided more than 20 consultations to various research groups wanting to incorporate health economics into their projects.

Meet Professor Philip Clarke



“I was an economist and more than 20 years ago I looked around to see how I could apply economics, and health was an area where you could see the fruits of your labour. Potentially, your work could have a direct impact on policy and health decisions.”

Professor Philip Clarke’s work and research as a health economist has taken him to the University of Oxford to do an economic analysis of the United Kingdom Prospective Diabetes Study – a landmark trial of policies to improve the management of people with type 2 diabetes.

He has also carried out research on behalf of international organisations including the World Bank and the OECD. Before joining the Centre for Health Policy in 2012, Professor Clarke (pictured) was at the Sydney School of Public Health. Before that he spent six years in Oxford.

During his work and research as a health economist he has drawn upon a ‘toolbox’ of skills that were developed through his studies and working life as an economist.

“As an economist, you get a toolbox of skills for analysis that gives you a way of looking at problems in a different way to clinicians and to other disciplines. There’s an ability to work on medical or clinical problems, or health policy problems, and to come up with solutions from that economic toolbox,” Professor Clarke explains.

“Then it’s about communicating why you believe certain solutions might be better than others – whether that’s about reducing waste, increasing efficiency or providing incentives. Economists analyse why things aren’t working but also look at ways to improve the potential translation of research into practice.”

Professor Clarke’s work in the health sphere has looked at the management of chronic disease, such as diabetes, and has analysed health policy issues, such as the high cost of some pharmaceutical drugs in Australia.

“Prior to 2015, Australia had a problem of paying too much for generic pharmaceuticals and over a number of years I published academic work demonstrating that we were paying higher prices for drugs like statins. I argued publicly for that to change and over time there has been a change in policy,” he says.

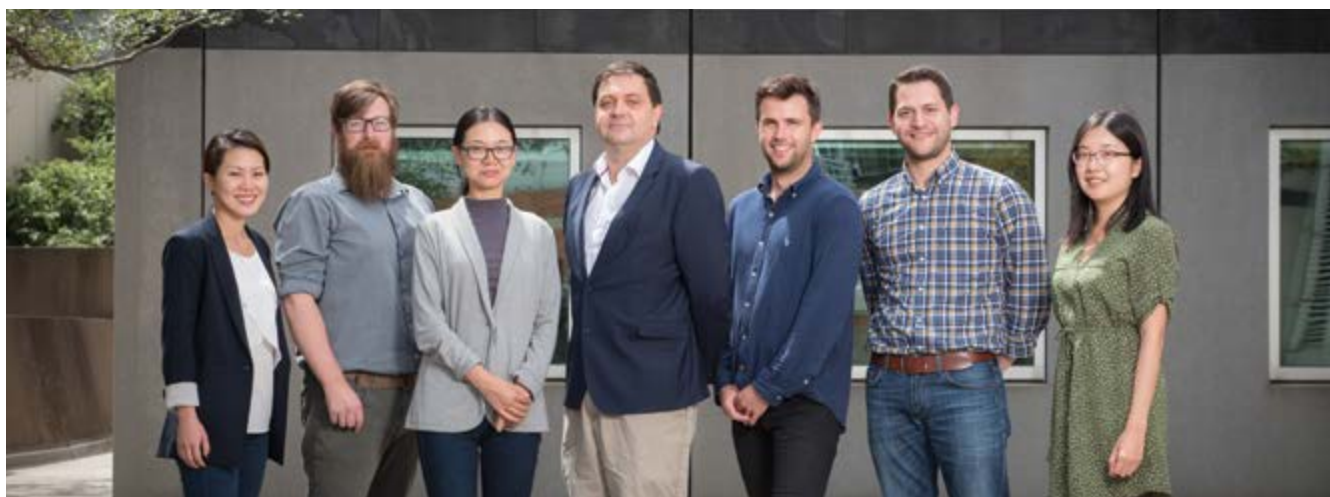
“Beyond that I’ve been interested in the cost of generic pharmaceuticals in developing countries and I’m currently doing some work in the diabetes area as a way, potentially, to make medicines more affordable.”

Professor Clarke finds the field of health economics as diverse and interesting today as when he began his career.

“I always want to learn something new and to be prepared to change my mind through the data I work with. Sometimes data shows a compelling case against a prior hypothesis,” he says.

“I think it’s important to always have an open mind and to be prepared to change your view when you find data contrary to your set of beliefs.”

The Cost of Pharmaceuticals



When Australians buy medicines listed on the Pharmaceutical Benefits Scheme (PBS), they contribute towards the cost of that medicine with a co-payment. Following the National Commission of Audit recommending an increase in the general level of co-payments, the 2014 budget included a \$5 increase in the general level of co-payments from \$37.70 to \$42.70.

Little research has been done on the impact of co-payments on the use of medications, but a 2008 study using Australia-wide PBS prescribing information showed co-payment increases a decade earlier resulted in a 'significant decrease in dispensing volumes' for many types of medication.

While the latest suggested price increase has yet to be enforced, it prompted research by Professor Philip Clarke (pictured above with team) and the Centre

for Health Policy. They have undertaken a program of work looking at how the costs of pharmaceuticals affect affordability for patients.

"This has included international comparisons of generic pharmaceuticals that showed Australia paid more, including when generics are used in combination therapies, such as combining two drugs into one pill," says Professor Clarke.

The Centre's research focused on the impact of non-concessional co-payments on drug use using information collected for the Australian Hypertension and Absolute Risk Study (AusHEART). Researchers studied patients aged 55 years and above who were taking cholesterol-lowering drugs – statins. There is strong evidence that statins are effective in preventing cardiovascular disease and that non-adherence leads to increased hospitalisation rates and greater medical costs.

The research showed clear links between costs of statins and whether they were taken long-term. People who didn't have a concession card and so access to reduced co-payments were around 60 per cent more likely to stop taking statins.

The research and associated media attention inspired Parliamentary debate and saw the Australian Government introduce changes in 2015 that drew on the Centre's research findings.

"Several of the proposed reforms stemming from the Centre's research have saved taxpayers several hundred million dollars per year," says Professor Clarke.

The Centre has also carried out research, published in the prestigious *Journal of the American Medical Association*, that found the cost of insulin in the USA has tripled over the past decade. In 2002, insulin costs per patient were \$231 a year but by 2013, that figure had risen to \$736 a year.

"What our study shows is how quickly things can change and why there is a need to focus on the costs as well as the benefits when deciding treatment options for people with diabetes," says Professor Clarke.

"Beyond that, I've been interested in the cost of generic pharmaceuticals in developing countries and I'm currently doing some work on that in the diabetes area as a way to potentially make medicines more affordable."

Emergency Talks



On a typical night in hospital emergency departments across Australia, medical staff confront a vast array of patient conditions – from broken arms and infections to patients struggling with psychosis and people with significant trauma sustained in road traffic accidents.

Clear and efficient communication between clinical staff is vital to ensure the best possible patient outcomes. Confidentiality of patient information is also a priority and it is a concern in emergency departments that are often busy and open public spaces.

Previous research suggests miscommunication between staff is a factor in up to 80 per cent of medical errors, and confidentiality is inadvertently breached regularly due to the public and open nature of hospital settings.

In 2016, the Centre for Health Policy joined the Monash Health Partnership at Deakin University and international architectural firm, HASSELL, to research optimum spatial designs for emergency departments. The focus was on creating spaces that would support efficient and confidential information exchange between staff, and foster the fast and convenient flow of information.

The work was supported by an Australian Commonwealth Department of Industry Research Connections grant and the Centre for Health Equity input was led by Dr Lucio Naccarella (pictured).

The research found there are complex systems of communication within busy Emergency Departments with staff talking briefly and frequently in all areas – central workstations, dedicated rooms, transit areas, communal areas and patient spaces. And the move towards deconstructed hospital environments that have led to a more hotel-like appearance and fewer physical barriers is not always appropriate in the emergency department setting.

“The research revealed three key factors influencing the extent to which Emergency Department workspaces are facilitating informal communication. These were staff perceptions of privacy, safety and connectedness to emergency department activity,” says Dr Naccarella.

“The research suggests the need for small, adaptable and protected spaces that staff can use for a variety of activities, including informal communication.”

Other findings were that workspace designs should support ‘case talk’ and ‘comfort talk’ between staff and provide spaces that give visibility

and connectedness to staff to bolster awareness and control over their environment. Department design should also capture relevant informal communication between staff and funnel that into formal communication systems, such as workstations, mobile technology and computers. Optimum designs also balance patients’ and staff feelings of proximity and safety and maintain a clinical appearance to uphold an atmosphere of ‘professionalism and hierarchy’.

The research received the overall Research Paper award for a ‘Design Research Project’ at the 2017 European Healthcare Design Conference in London.

Centre for Mental Health

“We have stellar researchers, accomplished teachers and mentors, and we are good at engaging with the general community. We just received funding from the Commonwealth Government to lead a program of work in Australian suicide prevention research. This involves a consortium of people from almost every state in Australia – we bring the best people in the land together in our collaborations.” – Professor Jane Pirkis, Centre for Mental Health Director.

The work and research being done by students and academics at the Centre for Mental Health aims to improve mental health and to mitigate the many impacts of mental illness on communities across Australia and further afield.

“Despite the great work being done by *beyondblue* and similar organisations, there is still a fair degree of stigma attached to mental health problems, and particularly the severe and complex end of mental health issues. Suicide remains an issue. Rates remained stable for some time but are increasing again,” says Professor Pirkis.

“And the way the service system meets community mental health needs is an issue. Part of that is due to resourcing but it’s also how you best configure a system to meet the different types of needs and levels of needs in communities.”

The Centre has three units:

Global and Cultural Mental Health –

The unit works to find ways of improving mental health and to reduce mental illness in disadvantaged communities and among some of Australia’s, and the world’s, most vulnerable people. Led by Associate Professor Harry Minas (pictured), programs focus on mental health system developments in low and middle-income countries and on studying and improving mental health in immigrant and refugee communities in Australia.



Mental Health Policy and Practice – Led by Professor Jane Pirkis, the unit’s aim is to positively and effectively influence policy and practice in Australia. The unit’s staff evaluate large-scale mental health and suicide prevention programs, conduct epidemiological and intervention studies in the area of suicide and its prevention, and run projects on suicide, mental health and the media. Research undertaken includes studies on improving the health of Indigenous and non-Indigenous ex-prisoners, evaluations of current reforms in primary mental health care, and Ten to Men – the Australian Longitudinal Study on Male Health.

Population Mental Health – The unit conducts research on what steps communities can take to prevent and intervene early with mental disorders. The focus is then on translating the findings from that research into practical interventions that empower communities to act. The unit helps evaluate large programs that create the systems within which clinical care is delivered. Training researchers in this vital area is also part of the unit’s work. The unit is led by Professor Anthony Jorm and has a close link with Mental Health First Aid Australia, a not-for-profit agency designed to translate research findings into practical actions.

Meet Professor Jane Pirkis, Director of the Centre for Mental Health



“I like working in a field where there’s an opportunity to do research that has practical relevance ... I feel it can be useful in the real world. It’s nice to work in an area where there is some potential to make a bit of a difference.”

Professor Jane Pirkis (pictured) began her working life as a psychologist but only a year after working in a clinical role, she found a new direction. That direction eventually led her to research the complex and sensitive area of suicide prevention and to lead the School’s Centre for Mental Health.

“I loved every minute of studying psychology but once I started working as a psychologist I found the focus on the individual was a little narrow for me,” says Professor Pirkis.

“I realised I was more interested in groups of people than in individuals.”

For more than 20 years, Professor Pirkis has studied suicide, initially looking at suicide among people who have had contact with mental health services.

Professor Pirkis’s work has since helped shaped suicide reporting guidelines for journalists internationally, including guidelines developed by the World Health Organization and the International Association for Suicide Prevention.

“Early on in my research career, I looked at the relationship between media reporting and suicide and imitative suicidal acts. That research showed categorically that reporting which glorifies or normalises suicide can have a pretty bad impact in terms of imitation,” explains Professor Pirkis.

“Conversely, there are things that journalists can do that make a story helpful to people at risk, such as providing telephone helpline information or describing individuals who have resolver or mastered a crisis.”

Most recently, Professor Pirkis led the Man Up research project, testing the powerful television documentary about masculinity, mental health and suicide, before it aired nationally. The documentary was broadcast on the ABC and the project attracted positive, intense and widespread social media attention.

“The Centre has also conducted research on sites that are frequently used as locations for suicide. We did a meta-analysis that looked at the kinds of interventions that can be introduced at those sites and their impact,” says Professor Pirkis.

“For example, we found physical barriers were really effective and reduced suicides. Often the public assumes that people will simply go and find another site, but we showed there’s only a small substitution effect. That study has been used by councils and other organisations and individuals across the world to argue for interventions.”

Years after beginning her work in mental health, Professor Pirkis has lost none of her passion and interest for the field.

“Nationally and internationally there are committed people working in suicide prevention and it’s a very collegiate field,” she says.

“Suicide is a big problem but it’s very rewarding to be working in an area where there is potential to make a difference.”

Ten to Men



Ten to Men is the first national longitudinal study in Australia focusing exclusively on male health and wellbeing. It is also the world's largest study of its kind.

Australian males have poorer health than Australian females. They have shorter life expectancies and are more likely to experience health problems like lung cancer, skin cancer, heart disease, liver disease, respiratory disease and stroke. They are more likely to use alcohol and to smoke and they are less likely than females to visit health professionals. The health gaps are even greater for males in rural and remote areas and in Indigenous communities.

Ten to Men is a study of just under 16,000 Australian men and boys between the age of 10 and 55 years. It is a cornerstone of the Commonwealth Government's National Male Health Policy and aims to identify the social, economic, environmental and behavioural factors that contribute to poorer health outcomes for males.

The extensive data is being used to shape policies to improve health and wellbeing for all Australian boys and men at key life stages.

Led by Professor Jane Pirkis and Professor Dallas English of the School of Population and Global Health (pictured), the study recently completed wave 2 with the research already having impacts.

In 2017, researchers explored links between traditional male values and thoughts of suicide and self-harm. They found that out of 11 traits traditionally associated with masculinity, only one – self-reliance – was reflected in a higher incidence of suicidal thoughts. Each year in Australia, 18.5 in every 100,000 men take their own lives, which is more than three times the rate for women.

“Self-reliance can be a positive thing, but when it becomes a barrier to seeking help, or results in men blaming themselves, it can make some men vulnerable to self-harm,” says Professor Pirkis.

“It seems that if a core characteristic of maleness is being self-reliant, when men face tough times they might be reluctant to seek help and to reach out to family and friends. This finding generated a lot of media interest and interest among the men's health community working on the ground in Australia.

“Our findings may go some way to explaining what mental health professionals have been encountering for years: that many men are reluctant to seek help and may respond much better to health messages that use language that emphasises taking action and taking control of your health, rather than using words like ‘help’ and ‘therapy’.”

Ten to Men has produced papers and articles on topics including health and lifestyle factors associated with sexual difficulties, sleep apnoea, why men go to

the doctor, psycho-social job stressors and thoughts about suicide, and diabetes in young adult men.

“Ten to Men is an important study and there is nothing like it of its kind,” says Professor Pirkis.

“It will allow us to look at some of the important influences on poor health and good health and what it is males do in their lives that might increase, or decrease their chances, of being healthy.”

Teen Mental Health First Aid



A new classroom program is helping teenagers learn how to recognise mental health problems in their peers and to support those friends to get the help they need to recover.

The teen Mental Health First Aid program is a classroom training program for high school students in years 10 to 12. It teaches teenagers skills they can use to help a friend who may be experiencing a mental health problem. Teenage years are a key time to intervene and to raise awareness of mental health and mental illness.

“Mental health problems are common in young people and they often have their first onset during this period of life,” says Professor Anthony Jorm (pictured).

“But many affected youths either don’t seek or delay seeking professional help.”

The course was also developed by Mental Health First Aid Australia in response to a growing body of research that suggests young people prefer to share problems with their peers.

The course is delivered in three interactive 75-minute sessions and uses videos, group discussions and activities to capture the attention and interest of the young audience. Sessions cover vital topics such as anxiety, depression, eating disorders, psychotic disorders, suicidal thoughts and behaviours, deliberate self-harm, intoxication from alcohol and other drugs, bullying and abuse.

It is based on a three-year study that saw teen Mental Health First Aid sessions delivered to 1000 year 10 students in four Melbourne high schools. They received either teen Mental Health First Aid training or an equivalent length Apply First Aid course. Students were periodically surveyed about their knowledge and attitudes towards mental health and mental illness and their helping behaviours towards a friend.

By the end of the study, the results were positive. More young people could recognise anxiety disorders, students were more confident that they could help a friend with a mental health problem and students were also more willing to disclose their own mental health problem. Around 47 per cent of students would disclose a mental illness before taking part in teen Mental Health First Aid training. After completing the program, that figure rose to 61 per cent.

The project continues to look at the effects of teen Mental Health First Aid training on recognition of mental disorders, help-seeking beliefs, mental health first aid intentions, stigmatising attitudes, confidence in supporting a peer, help provided to a peer and mental health.

“Rather than discussing in-depth individual mental illnesses, the focus is on learning to recognise changes in thoughts, feelings and behaviour that indicate that there might be a mental health problem,” says Professor Jorm.

Professor Jorm and his fellow researchers believe students who receive the teen Mental Health First Aid training will continue to show significant increases in their capacity to recognise mental health problems in peers and, importantly, they will be better able to act appropriately to assist them.

Nossal Institute for Global Health

“The principal aim from when I joined the Institute was to focus more specifically on broad issues of health systems development in the Asia Pacific region - we are really trying to draw out the implications of the rapid transitions of the Asia Pacific region for those systems. The big challenge we are focused on overall is the conundrum of rapidly transitioning societies and very sluggish health systems that, for various reasons, can't keep up with the pace of change. That's partly to do with the inherent conservatism of the health professions and how health funding works and a series of other constraints.”
– Professor Barbara McPake,
Director Nossal Institute for Global Health

The Nossal Institute has a vision of building a better future through advances in global health. Its work is underpinned by core principles of health equity, knowledge, sustainability and partnership.

“There is a need to reorient health systems, whether in Australia or Cambodia. This is a reorientation from systems that tend to be hospital-based and to prioritise specialist intervention for a person with multiple overlapping health conditions, to primary care systems that can treat the whole person,” says Professor McPake.

“We need systems that can look at preventive and lifestyle interventions as well as therapeutic interventions.”

The Institute's units are:

Maternal, Sexual and Reproductive Health – the unit, led by Dr Alison Morgan (pictured), has a focus on building maternal, sexual and reproductive health systems and services to more effectively reach under-served populations in low and middle-income countries. Indonesia, Nepal, Philippines, Bangladesh, India, Thailand, Laos, Myanmar, Kenya, Ethiopia and Fiji have benefited from the unit's research.



Disability Inclusion for Health and Development – Led by Dr Alex Robinson, the unit has undertaken projects such as how to measure disability so a school system can count the number of children with disabilities. An accurate tally helps work out the amount of extra funding a school requires to support those children's integration into the mainstream education system. The unit also pioneered the Rapid Assessment of Disability initiative widely used for research purposes to examine the impact on disabled people of interventions.

Governance and Financing – Health system weaknesses are a major constraint to improving and increasing access to primary health care services. So, the unit has a clear goal of strengthening the foundations of health systems – their governance, funding arrangements and policy framework – to support the delivery of effective services and programs. The unit, led by Professor Peter Annear, focuses on health financing, public-private health systems and how to help governments develop strategies and frameworks to tackle the rise of non-communicable diseases in the Asia-Pacific region.

Meet Professor Barbara McPake, Director of the Nossal Institute for Global Health



“As part of my under-graduate degree in economics I had a couple of lectures in health economics. They interested me because they showed how market failure could have a real meaning for something important.”

Professor Barbara McPake (pictured) decided to focus on health economics while she was an under-graduate student at York University in the UK.

“I remember one of my lecturers looked at how people manipulate markets and manipulate attempts to control markets,” says Professor McPake.

“At that time, the National Health Service in the UK had been trying to introduce performance indicators for hospitals and one of those indicators was bed occupancy. That lecturer explained that it was easy to have a high bed occupancy rate if you just didn’t release one patient until the next one was ready to be admitted.

It continues to fascinate me the way that standard economic approaches tend not to work in health. The core of any market is that someone sells something and someone buys something. But in that transaction in health, the person selling has all the information on their side and the other person is at their mercy in terms of being told what they need to buy.”

Professor McPake joined the Nossal Institute in 2014 from the Institute for International Health and Development at Queen Margaret University in Edinburgh. From the early 1990s until 2005 she was based at the London School of Hygiene and Tropical Medicine and one of her first significant pieces of work was evaluating the Bamako Initiative – a health financing and primary healthcare strengthening program sponsored by UNICEF and the WHO.

“It was controversial because it involved leveraging user fees as part of the package and it was being promoted around the same time as the World Bank was promoting user fees but with a slightly different structure and rationale. There was a big push back on the commercialisation of healthcare and the problems of creating financial incentives in health markets were big issues in that,” says Professor McPake.

“We did a five-country evaluation of how that program was working in Africa and saw many of the issues one would expect, including community health workers becoming small business people, rather than community volunteers and publicly oriented.”

Last year, Professor McPake and a colleague edited a series of papers for *The Lancet* on the role of the private sector in health, looking at the commercialisation of small scale primary care and the many

manifestations of private enterprise across the health sector, from high-tech private hospitals in India through to drug peddlers in rural Nigeria.

“We argued that most of the existing research and literature wasn’t really asking the right questions, such as ‘who is more efficient – the public provider or private provider?’” says Professor McPake.

“We reframed the question to ask what produces the best outcomes for the whole population and what are the policies that produce better outcomes for the population?”

Improving Maternal and Neonatal Health in Indonesia



The Australia and Indonesia Partnership for Maternal and Neonatal Health (AIPMNH) was a venture between the Australian and Indonesian governments to improve maternal and neonatal health services and to reduce deaths due to pregnancy complications or poor postnatal care.

Indonesia has the highest maternal mortality rate in south-east Asia. In 2007, around 228 women died for every 100,000 live births. In poorer provinces, maternal mortality rates are worse.

AIPMNH began in January 2009 and concluded at the end of 2015. It was centred on Nusa Tenggara Timur (NTT) Province which researchers found had one of the worst rates of maternal deaths – 306 women died for every 100,000 live births in the province during 2007. Neonatal mortality in the province was also high with 57 babies dying per 1000 live births that same year.

The region includes a series of islands and poor infrastructure makes travel challenging, so it is difficult for communities to access health services, including maternal and child health services. Perhaps not surprisingly, more than 75 per cent of women gave birth at home and 40 per cent of births were attended by traditional birth attendants.

AIPMNH was formed between governments in Australia and Indonesia and specifically worked with a number of Government of Indonesia agencies: Bappeda (Regional Development Planning Agency) acted as the overall manager and coordinator with Health, Community Empowerment (BPMD), and Family Planning and Women's Empowerment Boards (BPP) as technical implementing agencies.

Dr Kris Hort (pictured) and colleagues at the Nossal Institute supported the AIPMNH team to better understand the challenges faced by communities in NTT in accessing health services, and how to overcome this with increased communications via radio shows, community dramas and mobile phone campaigns. Communications encouraged mothers-to-be to adopt behaviours that would benefit their health and their babies' health and messages were also aimed at birth attendants, husbands, family and those in the health system who could support mother and baby health.

The program improved how maternal and neonatal care was delivered at community level and more than 5000 health workers and volunteers were trained to assist with childbirth. Birthing wards were renovated, doubling the number of births able to take place at some clinics in the province.

"The project developed and implemented a number of key interventions, including the sister hospital program which partners specialist referral hospitals in more advanced areas of Indonesia with district hospitals in NTT," says Dr Hort.

"It also implemented community management boards at community health centres, an improved local health information system and strengthened community health centre capacity to manage obstetric and neonatal emergencies."

AIPMNH demonstrated that it is possible to reduce maternal deaths in settings such as NTT. The program has reduced maternal death by 40 per cent, compared to a national reduction in maternal deaths by less than 10 per cent over the same timeframe. There was a 31 per cent rise in deliveries of babies in health facilities, a 30 per cent increase in management of maternal and neonatal complications and 11 district hospitals were licensed and accredited.

"The program encouraged the NTT government at provincial and district level to give priority to, and focus more, on the high levels of maternal mortality, and it demonstrated what local government commitment can achieve," says Dr Hort.

Evaluating Nurse Mentoring Programs in India



Nursing staff in the public health system in parts of India are being mentored and supported to improve the quality of care provided for women and their newborn babies.

The Indian states of Uttar Pradesh with a population of 204 million and Bihar, with a population of 99 million, are characterised by poverty, low levels of literacy, gender inequality and high maternal and newborn mortality.

“To reduce mortality, women are paid a financial incentive by the Government to attend health facilities for delivery rather than delivering at home where there is no capacity to manage complications should they arise,” says Associate Professor Michelle Kermode (pictured) of the Nossal Institute for Global Health.

The incentive program – the Janani Suraksha Yojana or JSY – has been quite successful in attracting women to health facilities, but the quality of care provided at those facilities is often not as safe as it could be. The Bill & Melinda Gates Foundation (BMGF), in partnership with national and state governments in India, have invested in several nurse mentoring programs. The aim of the mentoring programs is to improve the quality of maternal and newborn health care, compliant with internationally recommended, evidence-based standards.

These nurse mentoring programs seek to enhance the clinical care provided in labour rooms as well as strengthening the healthy systems necessary for the nurses to practice safely. Examples are the Better Births and the Technical Support Unit programs in Uttar Pradesh, and the Technical Support Unit program in Bihar. The programs include the provision of a nurse coach or mentor, labour room simulation training and feedback to staff regarding progress in their performance. Preliminary results indicate that positive changes in practices are occurring, but the benefits in terms of reduced mortality and morbidity are still being assessed.

In early 2017, the Nossal Institute was awarded a grant from BMGF to undertake a comparative evaluation of several nurse mentoring programs being implemented in Uttar Pradesh and Bihar. The evaluation will highlight aspects of the interventions that are most and least successful and most cost-effective, drawing on learnings from all nurse mentoring programs included in the study.

“Even though the design of these nurse mentoring programs is somewhat different, they share the common aim of improving the quality of care provided in labour rooms,” says Associate Professor Kermode.

“The Nossal Institute team will conduct comparative economic, process and impact evaluations, and the findings from this work will be used to guide policy makers and program planners who want to replicate, adapt or scale-up nurse mentoring programs elsewhere”.

Vaccine and Immunisation Research Group (VIRGo)



“VIRGo has been in place for over 20 years and has the largest and longest standing child and adolescent vaccine population research and clinical trials program in Australia. It is a collaboration between the Murdoch Children’s Research Institute and the Melbourne School of Population and Global Health at the University of Melbourne, where VIRGo is principally located. Our research findings provide policy support regarding best use of vaccines in national schedules in Australia and globally.” – Professor Terry Nolan AO, Head of VIRGo.

Vaccine and immunisation research is conducted in three complementary programs: clinical trials, epidemiology and social research in vaccine hesitancy.

1. **Vaccine clinical trials:** explores effectiveness, antibody responses, and safety of new vaccines in standard or novel schedules. In addition to infants, children and adolescents, our studies also include adults for specific conditions of interest such as influenza, especially pandemic influenza.
2. **Vaccine-preventable disease epidemiology:** assesses the incidence and population susceptibility of potentially vaccine preventable diseases, and the impact of vaccination programs.
3. **Vaccine hesitancy:** studies factors that determine decision-making by clients and health professionals in relation to confidence in vaccine use and acceptance.

Current Projects

- *FluMum:* A prospective cohort study of mother-infant pairs assessing the effectiveness of maternal influenza vaccination in the prevention of influenza in early infancy (funded by NHMRC).
- A Phase IV, observer-blind, randomised, cross-over, placebo-controlled multicentre study to assess the immunogenicity and safety of a single dose of Tdap vaccine in pregnant women (funded by GSK Biologicals).
- A study to evaluate the efficacy of maternal immunization in pregnancy with RSV F vaccine in preventing RSV lower respiratory tract infection in young infants (funded by Novavax).

- Immunogenicity and safety study of 1 and 2 doses of meningococcal ACWY vaccine in toddlers, persistence up to five years after vaccination, and co-administration with conjugate pneumococcal vaccine (funded by GSK Biologicals).
- A Phase III, observer-blind, randomized, controlled multicentre study to evaluate the safety of a trivalent subunit influenza vaccine produced either in mammalian cell culture or in embryonated chicken eggs (Fluvirin®), in healthy children and adolescents aged 4-to-17 years (funded by Novartis Vaccines).
- Phase 2, randomized, controlled, observer-blinded study conducted to evaluate the immunogenicity, safety and tolerability of a Neisseria meningitidis serogroup b bivalent recombinant vaccine in healthy toddlers aged 12-to-24 months (funded by Pfizer Vaccines).
- Persistence of immunity and response to a booster dose of DTPa or dTpa vaccine at 18-months- old following acellular pertussis vaccine given at birth in healthy infants (funded by NHMRC and GSK Biologicals).
- Development of new strategies for targeting vaccine-hesitant parents in Victoria – a vaccine education and communication training program for paediatricians.
- Parent Immunisation Needs and Attitudes Surveys – Community and Antenatal (PINA-C and PINA-A).

Bloomberg Philanthropies Data for Health Initiative



“Michael Bloomberg, former Mayor of New York, believed strongly in the power of information to guide and evaluate the impact of public health interventions. He believed in understanding who was dying of what in New York City to guide what could be done about it.

He came to me and said, ‘I’ve been doing this in NYC and you’ve been trying to do this in 70 countries or so’. Together we settled on 20 countries with an idea to build a project that would strengthen the fundamental information systems on who dies of what in those countries.” – Professor Alan Lopez, AC, Director Bloomberg Philanthropies Data for Health Initiative.

The Bloomberg Philanthropies Data for Health Initiative is a four-year, \$100 million program globally. The aim is to help more than one billion people in developing countries to live healthier and longer lives by establishing reliable health data to help guide health programs and policies.

The World Health Organization believes around 65 per cent of deaths globally each year – around 35 million deaths – are undocumented. This statistical gap makes it difficult for countries to recognise and tackle health issues.

“The key aims of the program are to raise consciousness and awareness with government policymakers that having reliable and timely information about who is dying of what in their country is fundamentally important when deciding on health policies and programs that accelerate health improvements in their populations. If you don’t have that information you may make decisions based on ideology, what’s in the newspaper and who shouts loudest,” says Professor Lopez (pictured).

“The main technical leadership of the program is here in Melbourne. What we do, how we roll it out, how we evaluate it and how we assess impact are decided at this University and this School.”

The program has received significant co-funding support from the Australian Government Department of Foreign Affairs and Trade and countries benefiting from the research include Bangladesh, Brazil, Ghana, Morocco, Myanmar and the Solomon Islands. Program partners include the US Center for Disease Control and Prevention, John Hopkins Bloomberg School of Public Health, the United Nations Economic Commissions for Africa and for Asia and the Pacific and the World Health Organization.

The initiative allows research partners to transfer expertise and knowledge to resource poor countries and provide governments, aid organisations and public health leaders with the tools and systems to collect more reliable data. That information, such as more rigorous civil registration and vital statistics (CRVS) systems, can then be used to prioritise health concerns and resources and measure the success of healthcare programs.

“For example, countries like Indonesia are rapidly improving child survival rates by getting on top of issues like diarrhoea and pneumonia and infectious diseases, but men have been smoking for more than three decades and two thirds of men smoke,” says Professor Lopez.

“They are going to start dying in large numbers from lung cancer and heart disease and stroke – but that is not being measured. Countries need to understand the extent of this problem and how fast it is changing and which population groups are affected. This initiative is not statistics for statistics sake, it is about data for health and for health policy.”

Meet Professor Alan Lopez AC, Director Bloomberg Philanthropies Data for Health Initiative

“I’m known as ‘Dr Death’ because of my obsession about measuring death. My whole career has been around measuring mortality, interpreting mortality change, and developing methods to assess cause of death patterns more cost effectively. It is so fundamentally important to understand what people are dying from so we can do more to prevent the living from dying from those causes.”

Professor Alan Lopez AC became interested in epidemiology – the study of disease patterns in populations – after completing an honours degree in pure mathematics and studying applied statistics.

His PhD measured sex differences in mortality and causes of death in Australia and how rapidly they were changing. Soon after completing this, he went to the World Health Organization in Geneva, eventually becoming chief epidemiologist in the Health Statistics Division. It was there in 1986 that he had a career-changing moment.

“A young brash Rhodes Scholar at Oxford University walked into my office and said, ‘Are you Alan Lopez?’ When I replied ‘Yes’ he said, ‘Well, everything you’ve written about Africa is wrong’. I took an instant liking to him. He told me why I was wrong – and he was right – and we’ve had a great collaboration from then on,” says Professor Lopez.

That ‘brash’ scholar was Chris Murray and with Professor Lopez they developed what became known as the Global Burden of Disease (GBD) study. In 2017, the study marked its 25th year.

It has had profound impacts on health policy dialogue worldwide through using available data on mortality and disability and measuring health loss and population. In *Epic Measures*, a book about the GBD study, the author describes it as ‘one of the largest scientific exercises ever attempted. It was as complex and controversial as the first moon landing or the Human Genome Project’.

A second key moment in Professor Lopez’s career was meeting esteemed epidemiologist, Sir Richard Peto, who is internationally recognised for his work on statins, blood pressure control and tobacco. Professor Lopez was representing WHO at a World Bank meeting in the UK when Sir Richard Peto approached him to discuss his work on measuring international mortality trends.

“It was a very formal dinner setting with silverware and starched napkins and Peto came up to me because he’d read some of my work. He sat down beside me with an old cardboard suitcase he’d bought in a back street of Beijing that was filled with computer output. I missed out on dinner. That was the start of another long collaboration,” says Professor Lopez.

With the Bloomberg Philanthropies Data for Health Initiative, Professor Lopez is determined to continue improving governments’ awareness about the importance of statistics to inform health policy.

“We want to exploit the interface between research methods and IT and to intervene with medical establishments so they understand they have a public health responsibility when they certify a death. Because the accuracy of information about that death, when amalgamated, is critical for correctly understanding causes of premature death in countries,” he says.

“Finally, Bloomberg focuses on human capacity. We want to elevate the capacity and skills of people who collect mortality data annually so they understand the critical role they play in consolidating a public health database that is of immense usefulness to public health development.”

Each year, around 35 million deaths worldwide are uncounted and for many others, no cause of death is recorded. Around 43 per cent of deaths in the Oceania region are not recorded and 90 per cent of deaths in Africa are also unrecorded with no cause of death listed.

But new ways of harnessing technology are being championed by the Bloomberg Philanthropies Data for Health Initiative to fill this statistical vacuum, and impacts and benefits are already being seen. In rural Myanmar for example, local midwives who register births, deaths and causes of death are swapping scribbled notes and snail mail for computer tablets and a ‘verbal autopsy’ program.

The program uses a short, standardised questionnaire, a computer tablet and an algorithm that can accurately diagnose cause of death with the expertise of a doctor. It is revolutionising the collection of death data in Myanmar and has potential to bring similar benefits to many other similar countries.

“Verbal autopsy is a game-changer. It allows you to go to populations hitherto unmeasured and with simple technology and a tool that works, you can give a reasonably reliable estimate to governments of the leading causes of death,” says Professor Lopez.

“In Myanmar, 300,000 deaths a year in rural communities; 50 per cent of them are not being registered and the cause of death is not recorded. We will transform that situation and provide accurate

diagnoses of the cause of those 300,000 deaths and have that data entered into the central statistical database. We will do that in about a dozen Bloomberg countries.”

When someone passes away in a village, the responsible midwife takes a computer tablet kept at the rural health centre to visit the deceased’s family. They ask a set of structured questions of the family about the nature of the person’s symptoms, medical history and circumstances surrounding the death. The data are stored on the tablet and each month, the data collected about local deaths are submitted electronically to a district health centre that has a computer with the diagnostic algorithm to diagnose the responses. The diagnostic information is sent back to the local community and is also sent to a central body to be collated.

“Previously, midwives may have interviewed the deceased’s family informally, written the responses on a piece of paper and the cause of death was recorded as ‘unknown’. It was haphazard. That piece of paper or summary sheet was then sent by bicycle or boat to a local health centre. As it went up the chain there were lots of inherent problems,” says Professor Lopez.

“The verbal autopsy removes those problems. Questions are structured and are the same for every death and responses are stored on a tablet so they can’t be lost. And remote areas do have solar power and electricity and they have mobile phone coverage and smart phones. The science is done and the IT capacity is there.

“The basic underlying philosophy is that when people die the medical system can’t do anything more for them, but the knowledge of what they died from can be fed into the prevention programs in countries to help the living from having to face those same health issues. It’s using information about the dead to guide health policies for the living.”



The Global Burden of Disease Study – 25 years on

“When I started working on tobacco, no one really knew what the death toll was and policy worldwide was loose as a result. Through the Global Burden of Disease project, we brought a rigorous quantitative framework to reveal the likely annual number of lives lost from this absurd epidemic. As a result of this evidence, WHO worked with governments around the world to develop the first ever public health convention on tobacco control. It reveals how powerful data can be in devising good public policy.” – Professor Alan Lopez, AC.

The Global Burden of Disease study identifies the biggest health problems in 195 countries and territories. Since it began in the early 1990s, the study has grown to incorporate more than 2 billion results, 300+ diseases, injuries and risk factors, and more than 20 age groups.

Published each year in *The Lancet*, it draws on more than 80,000 data sources. Numerous governments in Australia, Brazil, Kenya, Norway, the UK and the US, as well as the Bill & Melinda Gates Foundation and the World Bank are using GBD findings to inform decision-making.

The original study was commissioned by the World Bank and was the most comprehensive effort ever to systematically measure the world’s health problems. The first report covered eight regions and five age groups. It shone a global spotlight on otherwise hidden or neglected health challenges, such as mental illness and the burden of road injuries.

“For the first time, we could compare lung cancer deaths with traffic accidents and the amount of ill health caused by tobacco with blood pressure and so on,” says Professor Lopez.

A smaller summary booklet was produced to accompany the first GBD study that came to the attention of Bill Gates. He became a key advocate for the project. The Bill & Melinda Gates Foundation recently funded a \$270 million 10-year program to continue the study’s work at the Institute for Health Metrics and Evaluation in Seattle, overseen by Dr Christopher Murray.

Recent outcomes of the study include findings that 30 per cent of the world’s population are affected by weight problems with more than 2 billion children and adults suffering health problems due to being overweight or obese. The US has the highest percentage of obese children while Egypt leads in adult obesity. Similarly, the study found that while the number of child deaths caused by diarrhea dropped by a third between 2005 and 2015, diarrhea still kills almost half a million children under the age of five each year. India and Nigeria account for 42 per cent of those deaths.

The Global Burden of Disease group within the Melbourne School of Population and Global Health is a lynchpin of the GBD study.

“Melbourne is the southern hemisphere hub of this massive exercise in quantifying global health,” says Professor Lopez.

“When the study began it was just Murray and Lopez. Now there are more than 2500 collaborators and three new collaborators are added every day. We began with 10 risk factors and now there are 90. Initially we looked at 100 causes of death and now there are about 365 causes. It’s important to keep quantifying global health to agitate for more evidence-based public policy to promote public health.”







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