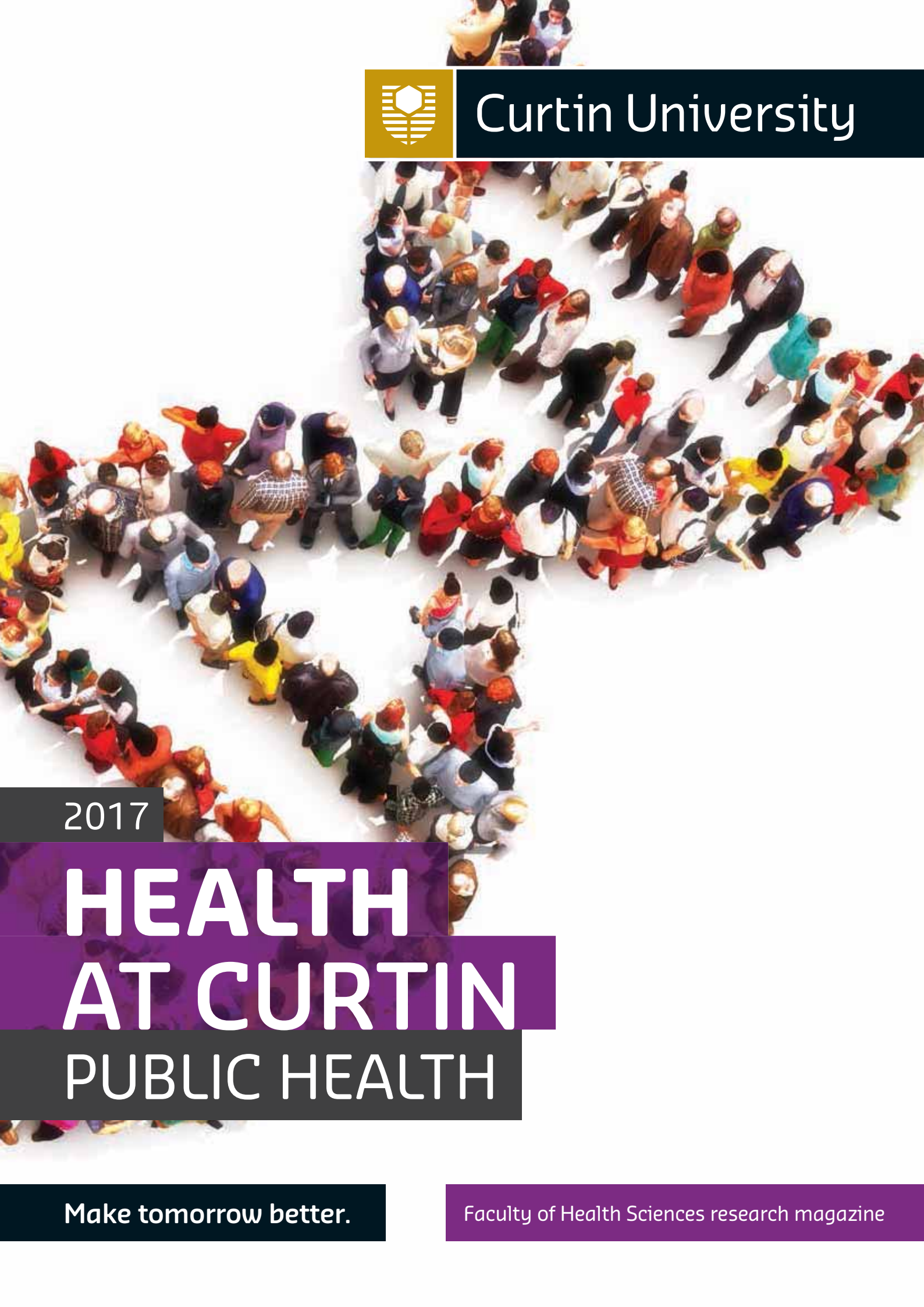




Curtin University



2017

HEALTH AT CURTIN PUBLIC HEALTH

Make tomorrow better.

Faculty of Health Sciences research magazine

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Message from the Pro Vice-Chancellor

Public health practice has become increasingly challenging. The emergence of new diseases, the threat of global climate change and terrorism, the steady increase of the world's population and the globalisation of world economies, have combined to make public health research an area of critical importance.

Public health experts at Curtin have a strong track record of producing collaborative, high-quality research. They are dedicated to improving the health of the population through better health promotion, nutrition, and disease prevention. They are also investigating the occupational and environmental causes of ill health and developing approaches to measure and prevent exposure to those causes. Their research into health systems and health economics is just as important, ensuring policy makers have the knowledge they need to formulate and prioritise public health policy.

Curtin's Faculty of Health Sciences has a strong, international network of collaborators in the field of public health research. Many of our academics act as consultants for government, not-for-profit agencies globally, including the World Health Organization, UNICEF, UNAIDS and AusAID. We also host the World Health Organization Collaborating Centre for Environmental Health Impact Assessment (one of only four worldwide) and the Collaboration for Evidence, Research and Impact in Public Health (CERIPH).



Much of our research is supported by highly competitive funding awarded by the Australian National Health and Medical Research Council (NHMRC), the Australian Research Council and other major funding bodies. In 2015, we were awarded the first NHMRC Centre for Clinical Research Excellence in Western Australia around community-based randomised clinical trials.

We are also home to the highly successful mental health promotion campaign Act-Belong-Commit – the mental health campaign that has not only improved the lives of many Australians, but is now being adapted and rolled out internationally by universities in Japan and Denmark.

I'm extremely proud of the work our researchers are doing in the public health arena and invite you to browse the many and varied projects showcased in this magazine, which are only a selection of the University's work in this field.

Professor Michael Berndt
Pro Vice-Chancellor
Faculty of Health Sciences

Revealing the truth about the workplace health of Australian immigrants

By Karen Green



The World Health Organization has reported that few migrants benefit from schemes that address occupational disease or injury. Given that Australia has such a large migrant population, it is perplexing that, until now, scant research has been undertaken in this area of public health.

Migrants are likely to work in the worst of jobs and suffer more work-related injuries and fatalities, international research has revealed, however little is known about the situation in Australia.

Now, Curtin researchers are investigating the prevalence of exposure to workplace carcinogens and psychosocial hazards in migrant workers in Australia.

“Australia is largely a nation of migrants, and for more than 70 years, migrants from non-English-speaking backgrounds have contributed significantly to the nation’s workforce,” says Associate Professor Alison Reid, at Curtin’s School of Public Health.

“Over the next 40 years, Australia’s population is expected to grow to about 36 million. Most of this growth will come from immigration, given the trend in low birth rates. So it will be increasingly important to facilitate the participation of migrants into our labour force, and ensure safe and equitable working conditions.”

Previous research by Reid and her colleague Professor Lin Fritschi has revealed that work-related fatalities and hospital admissions are higher among New Zealand migrants than other migrant groups. Complementing this, Reid’s interest is the psychosocial hazards in workplaces.

The Australian Research Council is funding their latest study, which will reveal the workplace hazards that migrants typically encounter, including psychosocial issues such as racism. They’ll also assess whether migrants are more likely to be allocated undesirable and risky tasks, which their colleague at the University of California Davis, Dr Marc Schenker, refers to as the ‘3-D jobs’ – dirty, dangerous or difficult.

“Work segregation may exist where particular individuals are relegated to jobs that are physically or psychologically burdensome and with less opportunity for advancement. This situation is often referred to job ghetto-isation,” Reid explains.

“At the organisational level, discrimination also includes behaviours such as giving a worker too few tasks, and refusing to allocate tasks that are commensurate with the worker’s skillset.”

In fact, recent research has found that 40 per cent of Australian immigrants were still not using their skills and qualifications in their jobs more than a year after commencement, and Reid’s previous studies have shown that under-use of employment skills is linked with poorer mental health.

In addition to New Zealand migrant workers, the current study includes migrant workers from the Philippines, South Africa, Malaysia and India, and those with humanitarian visas. The information will be compared with that from Australian-born workers of European descent. The survey data builds on their previous study of mortality and hospital admissions from work-related injuries, by country of birth.

“We’d already identified that workers from middle-eastern backgrounds are more likely to be exposed to diesel exhaust than Australian-born workers, for example,” Reid explains.

“We also know that newly arrived immigrants tend to work in less-unionised industries, and are less likely to have employment benefits such as health insurance, and to claim on normal workers rights.

Workers on humanitarian visas are particularly vulnerable, she explains, and are loath to speak out about safety risks or abuses of human rights in case ‘rocking the boat’ jeopardises their visa status.

The study will also examine whether particular migrant groups are more vulnerable than others, and if there is a gender difference. Reid explains that while female migrants are often doing ‘3-C’ work – cooking, cleaning and caring – this doesn’t insulate them from bullying.

“Migrants in caring and service work are often exposed to racial harassment from clients, with some describing they’ve been treated ‘like slaves’. Ethnic discrimination can have a strong negative impact on both mental health and physical health.”

Addressing the gap in knowledge about the range of workplace hazards that migrants typically encounter is a key step in the process of addressing disparities and reducing exposure to harmful substances and behaviours for all workers.

The international project also includes researchers at Monash and Deakin universities, the universities of Western Australia and Melbourne, and the University of California. Testament to the increasing relevance of the research area, Reid’s work has been published in *Australia and New Zealand Journal of Public Health and Safety Science*, *The American Journal of Industrial Medicine* and *Annals of Occupational Hygiene*.

MILK MAN: A breastfeeding app for dads

By Zoe Taylor

A Curtin PhD candidate has developed an innovative app that provides fathers with information to help them support their breastfeeding partners.



Despite ample evidence of the benefits of breastfeeding, studies have found that less than 15 per cent of Australian babies are exclusively breastfed for the recommended six months. In western societies in particular, fathers have a major influence on a woman's decision to breastfeed, and the duration for which she breastfeeds. But while dads typically want to support their partners when it comes to breastfeeding, they often don't know what they can do to help.

Milk Man is a smartphone app developed by PhD candidate Becky White that aims to encourage men to learn about the importance of breastfeeding, and provides information on how they can support their partners if they experience breastfeeding problems.

It is potentially the first breastfeeding app exclusively targeted at men in Australia and the world, and is one of two interventions being trialled as part of the Parent Infant Feeding Initiative (PIFI), led by Professor Jane Scott and colleagues in the School of Public Health and the School of Nursing, Midwifery and Paramedicine at Curtin.

"Traditionally during pregnancy the focus is on the mother and preparing for the impending birth," Scott says.

"Fathers want to support their partners and be 'hands-on dads' but they often don't know where they can look for this information. Milk Man provides or links them with information via their phone which they carry around with them every day ..."

"While fathers are encouraged to attend antenatal classes, the focus is on how they can support their partner during the birth. There are limited opportunities for fathers to receive information on their role as fathers and how they can support their partners to breastfeed."

The primary aim of PIFI is to extend the length of time a woman breastfeeds her baby. It will be the first Australian study to provide significant evidence of the impact on breastfeeding duration using a male-focused intervention. The initiative is funded by the Health Promotion Foundation of Western Australia, and aims to recruit 1,600 expecting couples through antenatal classes at public and private hospitals in the Perth metropolitan area.

PIFI is a four-armed, randomised control trial and is evaluating two interventions in the four trial groups either singly or in combination. The fourth group is a control group that will receive the usual antenatal and postnatal activities that are offered by the maternity hospital.

The first intervention is a male-only antenatal class facilitated by a young father with breastfeeding 'experience'. The class provides dads with a safe environment to learn about breastfeeding and helps to prepare them for the early months of fatherhood from a peer who has already experienced it.

The second intervention is Milk Man. The smartphone app provides a space for men to talk to each other about breastfeeding and parenting, delivers infant-age relevant information and provides a complete library of evidence based information – all delivered in a quirky, fun format. It uses gamification, social connectivity, avatars and push notifications, and has been developed and tested with members of the target group, and with experts in the field.

Since the trial began in August 2016, Milk Man has been well received by fathers, with 80 per cent of the intervention group downloading the app. Users have also read articles on parenting topics 7,852 times, or an average of 16 per user, and have followed links to service provider websites 1,356 times, or an average of three per user.

The results from the trial are expected in late 2017, and Professor Scott anticipates the app will be available to the public soon after, where there is an ever-growing shift in the role men play as fathers and partners.

"The feedback we are getting from dads and their partners has been very positive," says Scott.

"Our research shows that fathers want to support their partners and be 'hands-on dads' but they often don't know where they can look for this information. Milk Man provides or links them with information via their phone which they carry around with them every day and can access immediately."

ACT-BELONG-COMMIT message keeps Roebourne locals mentally healthy

By Nicholas Brant

In the remote coastal town of Roebourne, Aboriginal people are receiving a mental health helping hand thanks to efforts of committed Curtin staff and Chevron Australia.

Amid the red dust and heat synonymous with WA's Pilbara, the small town of Roebourne is playing host to a unique mental health program designed to improve the social and emotional wellbeing of its Aboriginal residents.

The Mentally Healthy WA (MHWA) Act-Belong-Commit campaign encourages people to take part in activities that keep them mentally healthy and feeling good about themselves and everyday life.

"Being mentally healthy is as important as being physically healthy," says Bruno Faletti, acting MHWA manager. "Being active, having a sense of belonging and having a purpose in life all contribute to happiness and good mental health."

Although a number of Aboriginal groups had taken part in Act-Belong-Commit events in their communities, there had not been a specific focus on Aboriginal groups, nor any attempt to deliver the mentally healthy message in a culturally appropriate manner.

Mr Faletti says the Act-Belong-Commit message could be tailored

to suit Aboriginal people as their concepts around being healthy are very holistic.

"Health is connected to their land, their culture and their spirituality, and that seemed to resonate very strongly with our message anyway, but the notion was we wanted to make it more tailored or specific to the Aboriginal way of life," he says.

The Mentally Healthy team, in collaboration with the local community, developed a consultation strategy and determined the community was very interested in social and emotional wellbeing and how it could be improved.

Thanks to a grant from Chevron Australia, MHWA implemented a three-year-long program with goals that strongly resonated with Indigenous culture.

The program's manager, Lesley Murray, says her first priority was to help the community develop ownership and commitment to the campaign – a competition was held to select a special Indigenous design for the Act-Belong-Commit message, which was won by 11-year-old Roebourne local, Jasminda Stevens. The message that accompanied the design was 'Standing Strong Together in Roebourne'.

In adapting the Act-Belong-Commit message so that it resonated with Aboriginal concepts of wellbeing, the community identified activities to keep mentally healthy such as going bush, yarning, connecting with culture, fishing, sports, family get togethers and respecting elders.

NETWORKING KEY TO SUCCESS

Murray says a big part of her job consisted of liaising with and encouraging interagency collaboration in the region to better address the needs of the Roebourne community.

"What we kept hearing that people were out in the field dealing with crisis after crisis, and they just needed someone to help create a coordinated approach to finding a safe place to share information and learning," she says.

"People out in the field were dealing with crisis after crisis and they just needed someone to help create a coordinated approach to finding a safe place to share information and learning."

"So we created the Roebourne Social and Emotional Wellbeing Network, which is made up of various

agencies and community members involved in the social and emotional wellbeing area."

Some of these service providers are targeted towards young mothers and pre-schoolers, and focus on housing, welfare, youth and unemployment.

Murray says the network members help each other out with events such as sport games or art classes, and at the same time seek feedback from the community.

With the program nearly two-thirds complete, Murray and her colleagues have started to see greater attendance and community participation at local events.

"I think we came at a time when Roebourne was ready to work together and we have helped that process because the elders were very concerned for the welfare of children and families and their community," she says.

Mr Faletti says one measure of the program's success was how the community engaged with its

activities as well as the level of collaboration from like-minded mental health agencies. Signs are very positive so far, with strong community participation and support at events conducted during Mental Health Week in October.

"Our program is more about people feeling good about themselves and being able to handle day-to-day pressures, but that doesn't mean they never feel sad or they never feel blue or stressed; it means most of the time they are able to cope with what is going on," he says.

"The Roebourne experience provides a model for expansion into other communities, but the way the message is translated by certain groups may be slightly different. For example, Aboriginal communities in Kalgoorlie or the Midwest will localise how the message is adapted for their communities. Local consultation is the key. Our hope is that we move it state-wide and it has some resonance Australia-wide."

actbelongcommit.org.au

HOPE for impacting the world's leading cause of death

By Zoe Taylor

In 2014-15, a staggering 18 per cent of Australians reported having some form of cardiovascular disease, and with an ageing population, that figure is increasing. But researchers from Curtin and Monash have led a research project that reveals that inexpensive drugs can reduce heart attacks and strokes by nearly 30 per cent.



Professor Christopher Reid from Curtin University and Mr John Varigos from Monash University are the lead Australian researchers of the Heart Outcomes Prevention Evaluation-3 – or HOPE-3 trial. The trial involved more than 12,000 participants in 21 countries in three studies examining the effectiveness of statins, which lower cholesterol, combined with anti-hypertensives, which lower blood pressure, in preventing heart attack, stroke and death.

Results showed patients at intermediate risk of cardiovascular diseases (CVD) such as heart attacks and strokes, who combined the use of statin and anti-hypertensive drugs, saw a significant reduction in CVD events.

Professor Reid said men over the age of 55 and women over the age of 60 who exhibit one other contributing factor, such as being overweight, smoking or diabetes, are considered to be at an intermediate risk of having CVD.

“The findings could significantly reduce the risk of CVD for many Australians and reduce the pressure it places on the health system,” Reid says.

“Historically, being able to identify major contributors to cardiovascular disease, such as smoking or diabetes, has enabled us to drastically reduce the risk of death or disability.”

“The results of this research mean we have been able to identify yet another avenue to reduce the chances of people having a heart attack or stroke, which the World Health Organization lists as the leading cause of death worldwide, particularly in developing economies.”

In Australia, coronary heart disease, such as heart attack and angina, is the most common form of CVD. In 2014-15, 430,000 Australians indicated they had experienced a heart attack at some point in their lives.

Reid said the results of the research encourage conversations concerning the use of drugs in preventative treatment of patients, as well as avenues for future research into innovations such as ‘polypills’, which are a single pill containing many medications.

“There are still many aspects to consider as we continue to research ways to reduce the chances of people experiencing a CVD event, however the results of these studies offer a promising entry point into the next stages,” he says.

The results of this research are detailed in three papers recently published in *The New England Journal of Medicine*.

In 2015, 45,392 (29 per cent) of deaths had an underlying cause of cardiovascular disease.¹



Source: 1. <http://www.health.gov.au/internet/main/publishing.nsf/Content/chronic-cardio#s2>

POCKET DIETITIAN HELPING OVERWEIGHT ADULTS LIVELIGHTER

By Nicholas Brant

Smartphones, fitness trackers and apps have combined to give Curtin University scientists an edge in the latest study to find out if personalised feedback about diet and exercise can help people lose weight.

While taking photos of your food is often greeted with eye rolls or sighs of exasperation, some people throughout Perth will soon partake in the social faux pas in the name of science.

The study is the brainchild of School of Public Health Associate Professor Deborah Kerr, who is trying to better understand how people can lose weight by improving their diet and exercise regime.

Kerr and her colleagues, including School of Physiotherapy and Exercise Science Professor Leon Straker, are seeking people with a smartphone who are also overweight to participate in a study where they will take before and after photos of everything they eat or drink for four days via a custom-designed app.

The app is called the Mobile Food record and was developed over the past 10 years. Kerr collaborated with University of Hawaii Cancer Centre nutritionist Professor Carol Boushey, Purdue University Professor Edward Delp and a team of engineers.

The study participants will also be required to wear an activity monitor for seven days to keep tabs on their level of physical activity while they are monitoring their diet.

After receiving this information the dietitians will send out regular, personalised feedback to select study participants for six months to see if the personalised feedback helps them eat less junk food, be more physically active and lose weight.

Public health information has been effective at making people want to eat healthier, but some people find it difficult to incorporate these changes into their lives.

The research is possible thanks to a three-year Healthway grant which will see Kerr and Straker recruit 600 people in the Perth area between the ages of 25 to 65 via the LiveLighter campaign.

Participants will be split into three 200-person groups, with one group receiving personalised feedback on their regular food and exercise regime. The other groups will simply take photos of their food without receiving feedback or completing online surveys about their diet and physical activity.

“We are making it more personal to the individual, so rather than it be a generic message like ‘eat more fruit and veg’ or ‘eat less junk food’, it is actually more like ‘this is how many serves of junk food you are having, could you try swapping your soft drinks for water or a sugar free drink?’” Kerr says.

“Some people refer to it as having a dietitian in your pocket, so you have your mobile phone that collects the information and then we provide the feedback.”

A unique aspect of this project is the partnership with Heart Foundation WA’s Maria Szybiak and Cancer Council WA’s Steve Pratt and Anne Finch.

“In public health, we talk a lot about being able to translate research into practice,” says Finch. “The LiveLighter team is really excited to be involved in this project because it’s already influencing the way our social marketing campaign is being run.”

WEIGHT PROBLEMS LINKED TO CHRONIC DISEASES

According to surveys by the Australian Bureau of Statistics, 63 per cent, or almost two in three adult Australians, are overweight or obese, and 25 per cent of Australian children are currently overweight or obese.

Curtin Public Health PhD student, Charlene Shoneye, said overweight and obesity are the leading causes of chronic diseases in Australia, and national surveys are revealing that people are not eating enough fruit and vegetables and are eating too much junk food.

Shoneye said that public health information has been effective at making people want to eat healthier, but some people find it difficult to incorporate these changes into their lives.

“Tailoring health information helps people to see how public health advice relates to them personally,” she says.

At the end of the six-month period, Shoneye hopes the participants who received personalised feedback will have increased their level of exercise and intake of fruit and vegetables, and eaten less junk food.

“These behaviours each have significant benefits to health, but combined should result in a small amount of weight loss over six months. Losing at least five per cent of their body weight is enough to be clinically significant or to help reduce their health risk,” she says.

The researchers are currently focused on developing the most effective way to approach the user by speaking with people in the target groups and gaining their feedback on the best way to engage study participants.

TACKLING METABOLIC SYNDROME IN AT-RISK REGIONAL WA

By Arianne Chavez

In Western Australia's sprawling Great Southern region – underpinned by primary industry and pockets of tourism, and with a population of just 55,000 – academic Dr Krysten Blackford has made an impact on a condition so prevalent, it's considered a global public health issue.

Metabolic syndrome (MetS) is a cluster of abnormalities, including high blood pressure, high blood sugar and abnormal blood lipids, which significantly increase the risk of developing cardiovascular disease and type 2 diabetes. The World Health Organization cites cardiovascular diseases as the number one cause of death, and diabetes as one of the leading causes of death, in the world.

The risk factors for MetS are obesity, unhealthy diet, reduced physical activity and sedentary behaviour. Approximately one quarter of adults worldwide are estimated to have MetS, and in Australia it has a higher prevalence in rural and remote areas.

The sobering global and national obesity statistics offer an explanation for the upward trend of MetS, with large waist size the critical factor underpinning all other parameters of the syndrome.

Approximately 63 per cent of Australia's population is now classed as overweight or obese, an increase of around 9 per cent in the last 17 years, and the proportion of adults aged 50+ who are overweight or obese has reached 70 per cent. Additionally, the prevalence of obesity has been rising more among middle-aged adults living in isolated rural and remote areas of Australia. Globally, since the 1980s, obesity prevalence has increased by 28 per cent in adults and 47 per cent in children, equating to an estimated 2.1 billion people.

Approximately one quarter of adults worldwide are estimated to have Metabolic syndrome (MetS) and in Australia it has a higher prevalence in rural and remote areas.

Obesity is not the only critical risk factor for MetS, however. Advancing age is a major contributor to all MetS parameters and Australia's increasing rates of obesity, coupled with its aging population, make for a perfect storm of risk factors for a spike in chronic diseases in the coming decades.

In an attempt to reverse the impact of obesity and related health issues, public health campaigns have focused on promoting healthy eating and active lifestyles, however the rising occurrence of obesity points to their limited success. Rural and remote areas with ageing populations, limited access to health services, poor diets and physical inactivity are of particular concern to public health researchers, policy makers and health practitioners.

Dr Krysten Blackford from the Collaboration for Evidence, Research and Impact in Public Health (CERIPH), School of Public Health, focused on this issue with her PhD project, 'Development, implementation and evaluation of a diet and physical activity intervention targeting rural Australian adults with or at risk of metabolic syndrome'. She recruited at-risk 50 to 69 year olds residing in the community of Albany, and surrounding towns in the Great Southern region, approximately 400km from Perth.

"Adults in rural areas are at an increased risk of a range of chronic diseases, which is why my research focused on this vulnerable group," Blackford says.

"Albany and surrounding towns were chosen because the number of adults aged 50 to 69 in the region is representative of other rural areas in Australia, which means the intervention strategies and program materials would be suitable for other rural areas if the program was deemed successful."

Project participants were screened for MetS using the International Diabetes Federation criteria, and 400 eligible participants were randomly assigned to the intervention or control group. The intervention group received printed and online program materials designed to educate them about dietary and physical activity improvements, and motivational support.

"The home-based program used behaviour change approaches such as goal setting, self-monitoring and feedback, empowering participants to self-manage their health behaviours within their own environment," she says.

"Motivational interviewing was a key component of the program, which was implemented by trained assistants via telephone over the six-month intervention period. Telephone support was particularly useful for reaching the rural group."

At the end of the six-month program, the changes in participants' behaviours and blood profiles were very encouraging. There were significant improvements in triglyceride and cholesterol, weight, waist size and body mass index. The findings suggest that home-based intervention

programs, which include dietary guidance and strategies to increase physical activity, are a promising means to prevent the onset of chronic disease in rural adults.

"The health impact that can be achieved through intervention programs that motivate and empower individuals to adopt and maintain healthy behaviours is very encouraging, however this type of intervention should not be implemented in isolation," Blackford says.

"The impact of the physical and social environment on health behaviours is particularly important to consider when addressing such a complex health issue. Tackling obesity requires a comprehensive health promotion approach."

The results from Blackford's project have led to the development of a new project, modelled on her PhD research, which has been funded by Healthway. The 18-month project, Prevention HealthPathways, will be run by CERIPH in partnership with the WA Country Health Service (WACHS) and the WA Primary Health Alliance (WAPHA).

The project, a unique model to be implemented in primary care, supports the early identification and management of adults living in rural areas, who are at high risk of developing chronic diseases. GPs will access information about MetS, and other risk factors, via a newly-developed web portal, HealthPathways, which is managed by WAPHA and provides information on referral and management pathways for a range of health issues. GPs will be able to identify and refer at-risk patients to a home-based diet and physical activity program run by CERIPH.

"The WACHS acknowledges there is a current focus on the treatment of chronic disease in primary care in WA, rather than its prevention. We will be working with GPs to identify patients in need of dietary and physical activity improvements using the MetS diagnosis as a red flag. We will intervene early, rather than waiting for diabetes or heart disease to develop and then implementing management strategies," says Blackford.

"Prevention HealthPathways is part of the Action on Obesity Network, of which Curtin is a member. The network comprises organisations working within a system to address the high prevalence of obesity and associated chronic disease in the Great Southern region.

"Working with the community and forming both academic and practitioner partnerships at local, national and international levels are key to building programs and environments that support people to adopt health enhancing behaviours."

Prevention HealthPathways will be trialled with GPs at Pioneer Health in Albany, with the potential to be rolled out to other rural areas throughout Western Australia. Results of the project will be assessed in 2018.

COULD YOUR WORKPLACE GIVE YOU CANCER?

By Yvette Tulloch



Chia seeds, acroyoga, crossfit and meditation: the world has never been so obsessed with health and wellness. But are these healthy pursuits in our personal lives being undermined by unhealthy work environments?

Well-known epidemiologist and John Curtin Distinguished Professor Lin Fritschi is an expert in occupational causes of cancer. She says that in Australia, around 5,000 cancers every year are caused by exposure to something in the workplace. Very few of these cancers, however, are ever reported to compensation authorities, pointing to a lack of awareness in workers as to how these cancers were caused.

“People commonly have a misunderstanding about the types of things that cause cancer in the workplace, often attributing occupational hazards to heavy and dirty

industries, such as mining and construction,” explains Fritschi, who is a researcher at Curtin’s School of Public Health. “These jobs do involve exposure to hazardous chemicals and dusts, but there are also jobs which are not heavy industry but still involve exposure to carcinogens such as UV from the sun, or diesel exhaust. And increasingly, hazards such as being seated for long periods and exposure to shiftwork are now recognised as having long-term consequences on health.”

Fritschi has been researching occupational cancers – cancers that are caused wholly or partially by exposure to a carcinogen in the workplace – for the past 20 years. Together with colleague Dr Terry Boyle, she was one of the first to publish on the relationship between colorectal cancer and sitting at your desk for too long (and if you just stood up when you read that, you’re not alone). Singular studies such as these, however, do little to capture a holistic picture of the unique exposure risks a particular workplace poses. Luckily for the more than three billion workers worldwide, Fritschi and her colleagues are working on a way to make assessing individual workplaces easier so we can more effectively protect ourselves from exposure.

“Hazards such as being seated for long periods and exposure to shiftwork are now recognised as having long-term consequences on health.”

“Measuring workplace exposures has traditionally been quite difficult,” says Fritschi. “Asking people about their exposures at work isn’t useful because a lot of people don’t really know. And as you can imagine, going into multiple workplaces and trying to take twenty to thirty air monitoring devices is not really practical.”

With the help of her colleagues Troy Sadkowsky, of Research IT Pty Ltd, and Deb Glass and Geza Benke of Monash University, Fritschi has developed an online research tool called OccIDEAS that is now used in large-scale research studies both nationally and internationally. The tool’s point of difference is that it asks people what they do at work, not what they are exposed to.

“OccIDEAS asks workers about the tasks they do, the equipment they use and the protection measures that are in place, such as ventilation or face masks,” Fritschi explains. “Then based on the answers to these questions, complex algorithms automatically assess whether a worker is likely to be exposed to different chemicals.”

By automating this process, researchers’ time is then freed up to focus on those people and workplaces that OccIDEAS has identified as high risk. Importantly, it also means that more people can be interviewed and a larger dataset captured.

“Traditionally, a lot of the emphasis on health research and in occupational health regulation has been on the big companies in the traditionally dirty industries. As a result, health and safety is a priority for these

industries and is often managed very well,” Fritschi says. “But, 70 per cent of the Australian workplace are in small to medium-sized enterprises, which often don’t have expertise in occupational health and safety. With OccIDEAS, we can assess exposures in large numbers of people in a wide range of different jobs, including these smaller enterprises.”

The improved datasets generated by OccIDEAS have also meant Fritschi and her colleagues have been able to develop a more accurate method for determining carcinogenic exposure at a national level.

“Using this new method, we’ve showed that about 40 per cent of Australian workers are exposed to carcinogens in their current job,” says Fritschi.

But it’s not all bad news. Most workers who are exposed to carcinogens at work do not develop cancer, with the level of exposure playing a significant role.

One of Fritschi’s first studies investigated the link between pesticide use and lymphoma, the most common form of blood cancer in Australia. She found that people who sprayed pesticides had an increased risk of lymphoma, but only if they used a lot of pesticides.

“If you go out now and again to spray your roses, you’re not really increasing your risk of cancer,” says Fritschi. “However, people who are increasing their risk of cancer are people who mix pesticides, who spray it day after day, who clean up the equipment after spraying. These are the people for whom we need to prevent their exposure.”



46 per cent of carpenters do not use any respiratory protective equipment or other control measures.

Work can be done to minimise exposure via what's known as the control hierarchy: that is, elimination, substitution, engineering and administrative controls, ranked in descending order of efficacy. Where exposures cannot be controlled by this hierarchy, personal protective equipment (or PPE) is the critical last line of defence.

WORKPLACE COMPLACENCY A FACTOR IN CONTINUED EXPOSURE

In May 2016, SafeWork Australia released a report based on Fritschi's studies which investigated carcinogen exposures in the Australian construction industry. It found that although the industry is generally proactive in health and safety risk mitigation, there was a varied use of exposure controls. For the 96 per cent of construction workers who are likely to be exposed to at least one carcinogen at work (and of whom around half are likely to be exposed to at least four) this is particularly worrying.

Carpenters were highlighted as an extreme area of concern. The nature of their work means they are highly likely to be exposed to wood dust, which has been shown to cause several adverse health effects including asthma and nasal cancer. Yet the report found that 46 per cent of carpenters did not use any dust controls or personal protective equipment.

Workplace complacency has also been identified as contributing to the increased exposure to hazardous coal dust for workers in Queensland coal mines over the past two years. It comes after several cases of black lung were detected in QLD coal miners – the first to be seen in 30 years – sparked a review of the sector's respiratory health scheme.

OCCIDEAS TO BE COMMERCIALISED

Although OccIDEAS is already being used to assist occupational health and safety research in Australia, the US, the European Union and China, Fritschi has plans to commercialise the program to make it accessible to the general public.

"We would like to develop a smart phone app which uses the power of OccIDEAS to help individuals or small businesses understand what hazardous chemicals there might be in their workplace," she says. "Through the app, users will receive an individualised assessment and links to authoritative websites where workers can get more information about the chemicals and how they can eliminate or reduce their exposure."

The app will fill the gap in occupational health and safety expertise found in smaller enterprises, she says. And in the long term, she hopes to see it customised for use in developing countries where there is often virtually no expertise in occupational health and safety.

CANCER IN THE WORKPLACE

Working alongside Professor Fritschi into occupational causes of cancer are Dr Renee Carey and Dr Terry Boyle from Curtin's School of Public Health. Their respective research on workplace carcinogens and sedentary lifestyles as contributing causes of cancer will help to action greater awareness and better practice of occupational health and safety to reduce our risk of developing the disease. The group are funded by the NHMRC, Safe Work Australia and Cancer Council Western Australia.

DR RENEE CAREY BURDEN OF OCCUPATIONAL CANCER

It is estimated that 3.6 million Australian workers are exposed to occupational carcinogens in their current place of work. Dr Renee Carey has been researching the number of approximate future cancers that might result from these exposures to determine where preventative resources might be best used.

"We have estimated that the cohort of 14.5 million Australians of working age will develop approximately 4.8 million cancers in their lifetime, of which 1.4 per cent (or 68,500 cancers) are attributable to occupational exposure," says Carey. "Cancer sites with the highest number of predicted cases are lung (26,000 cases), leukaemia (8,000 cases) and mesothelioma (7,500 cases)."

It is estimated that 3.6 million Australian workers are exposed to occupational carcinogens in their current place of work.

The carcinogens estimated to contribute most to the occupational burden are asbestos (13,500 cases), solar radiation (10,000 cases) and benzene (8,000 cases). These results allow Carey and her research team to determine which current occupational exposures are most important, and where preventive resources might best be targeted.

"We can look at banning particular carcinogens, reducing exposure to carcinogens and closing high-risk industries, all of which would reduce our overall number of exposed people, whether to one or to multiple carcinogens."

DR TERRY BOYLE SEDENTARY LIFESTYLE AS A CAUSE OF CANCER

Recent research has shown that physical inactivity is the fourth leading cause of death due to non-communicable disease worldwide (heart disease, stroke, diabetes and cancers), contributing to over three million preventable deaths annually.

Dr Terry Boyle is researching the role physical activity and sedentary behaviour (sitting) play in increasing or decreasing a person's risk of cancer.

Boyle has found that people who have worked long-term in sedentary occupations have a higher risk of colorectal cancer. His research also focuses on non-Hodgkin lymphoma (cancer of the lymphatic system), and he has pooled data from around 12 studies from the US, Canada, Europe, Israel and Australia to investigate how physical activity and sedentary work influence the risk of different types of non-Hodgkin lymphoma.

Researchers are still unsure why extended sitting is so detrimental to our health, but it may have to do with the body's enzymes that help to regulate blood fats and sugars, and are released when certain muscles contract during standing.

STAND UP FOR YOUR HEALTH:

- Break up your sitting every 20 minutes with a short walk.
- Take the stairs instead of the lift.
- Go and talk to the colleagues in your office instead of sending them an email.
- Conduct walking meetings.
- Install software that reminds you to take regular breaks from sitting.



Lung cancer is the leading cause of cancer deaths in Australia, accounting for approximately 19% of all deaths from cancer.



It is estimated that 2.9 million workers were exposed to lung carcinogens at work in 2015. (Total Australian population in 2015: 23,781,200 / 12.19%)



The most exposed occupational group is miners and heavy vehicle drivers, followed by farmers and vehicle trades people like mechanics, couriers and construction workers.

Diesel exhaust was a common exposure in all of these groups, but other common exposures included tobacco smoke, asbestos and silica.



Regular GP to play larger role in prevention medicine

By Nicholas Brant

Health policy experts at Curtin University are delving into Australia's complex healthcare system to try and offset the pressure on hospitals and emergency departments. The researchers are looking for evidence that ongoing visits with general practitioners can head off debilitating health problems before people need to be hospitalised.

If you have ever visited your local hospital you would be one of millions of Australians who have utilised the country's acute healthcare system.

Associate Professor Rachael Moorin from Curtin's Department of Health Policy and Management says these brushes with the healthcare system are not going to get any easier due to Australia's rapidly ageing population, high prevalence of chronic illnesses and ever increasing community expectations about health.

Previous research has found on average between eight and 10 per cent of admissions to hospitals throughout Australia are potentially preventable, which represents a significant cost to the Australian healthcare system and distress for patients.

Data shows that rates of potentially preventable hospitalisations due to chronic conditions such as diabetes, asthma and heart disease are higher in WA than in other states.

That is why Moorin and colleagues at Curtin and the University of Technology in Sydney are investigating the benefit of shifting some healthcare service delivery from the acute healthcare sector (hospitals) to the primary healthcare sector (general practitioners).

Previous research has found on average between eight and 10 per cent of admissions to hospital throughout Australia are potentially preventable.

"We have a finite health budget and as time goes on that same budget has to stretch further and further," she says.

"That is partly because there is a greater burden of chronic disease but also because we have access to better technology that allows us to do more, but it all comes at a higher cost so we need to start thinking, 'where do we spend our health budget?'"

Moorin and her colleagues are halfway through a four-year NHMRC-funded study to produce empirical evidence regarding the impact of policies that promote GPs treating patients before they get to the point of needing hospitalisation.

"There has been a lot of policies implemented since the early 2000s to try and promote that activity by GPs but there is very little evidence that this type of treatment prevents hospitalisations," Moorin says.

The researchers are examining data from patients who suffer from chronic conditions such

as diabetes, asthma and some cardiovascular diseases as they are thought to be conditions that if managed on an ongoing manner by GPs means sufferers can avoid hospitalisation.

The research is focused on how regularly people with these conditions go to their GP and whether this type of ongoing contact provides better management of the condition and therefore reduces the need for being admitted to hospital.

Moorin says regular, scheduled visits with a GP are an indicator of proactive healthcare as opposed to reactionary healthcare where the patient seeks out a doctor when they notice worsening of their condition.

In proactive care a GP may detect an early decline in a condition and manage the decline before it reaches a stage where the patient needs to be hospitalised.

"There are markers in some conditions that can be seen early on before the patient notices the decline ... so someone who is an asthmatic, for example, might have to have their medication changed because it is no longer working and that will reduce the hospitalisation risk," she says.

SAME GP MAY BE KEY TO SUCCESSFUL INTERVENTION

Moorin says they are also examining whether people with chronic diseases who keep visiting the same GP are better off than sufferers who visit completely different GPs each time they need a doctor.

It makes sense that if you go to the same GP then that doctor will be familiar with you and your health history which would put them in better stead for treating you, she says.

"However, currently we do not have the evidence to show the impact this makes and in what type of people this is most important."

Project coordinator David Youens says they plan to consider whether interventions like regular GP visits might have varying benefits between different groups of people, such as those with different chronic conditions or within different age groups.

"If we find evidence that there are particular groups of people or conditions where ongoing primary care can be of particular benefit we think that this will be useful in terms of targeting or modifying existing policies to promote the most appropriate use of primary care services," he says.

"Given the ongoing pressure on hospitals and health budgets, we think this is important evidence for policy makers."

Helping cancer sufferers maintain quality of life

By Nicholas Brant



Curtin University researchers are working with scientists from around Australia and the world to spearhead research designed to improve quality of life for cancer patients in the most cost-effective way. The local researchers are trying to work out which aspects of life matter most to people with cancer, and therefore inform decision makers about which treatments are likely to be of greatest value to society.

As the leading cause of mortality in the world, cancer has touched everybody's life in some way. Either you have heard of someone who has been affected by cancer, you know someone who has gone through it, or perhaps you have battled cancer yourself.

While cancer exists in many forms, clinicians always recommend patients – no matter their age, gender or personal circumstance – maintain their overall quality of life.

Curtin's Dr Richard Norman, along with other researchers across Australia, Europe and North America, are trying to rework the quality-of-life tools widely used by clinicians to determine what aspects of life matter most.

"We are getting public views about what matters most in cancer care and that directly flows through to public decision making, so how we allocate scarce societal resources between the many worthy things that we could fund," he says.

Norman and his colleagues, led by University of Sydney scientist Professor Madeleine King, hope to adapt two widely used tools – FACT-G and EORTC QLQ-C30 – so that clinicians everywhere can assess a cancer patient's quality of life for the purpose of economic evaluation without having to burden them with additional and unnecessary questions.

"So rather than having to ask a whole new set of questions to allow an economic evaluation we are taking existing information and using it for evaluation purposes," he says.

The second part of their project aims to identify what aspects of life matter most to people with cancer and thus what is important to try and maintain when deciding on treatment options.

With an estimated 130,466 Australians diagnosed with cancer in 2016, and with nearly 47,000 of those people thought to have succumbed to cancer in the same year, selecting a treatment that lets patients lead meaningful lives is a multimillion dollar problem with far reaching consequences.

PATIENTS PREFER TO STAY ACTIVE AND PAIN FREE

So far their research has revealed cancer patients value maintaining their mobility and staying pain free as the two most important elements for having a good quality of life.

"So if patients were asked to trade-off between pain and something like nausea or fatigue then people were more willing to accept the latter than the former," Norman says.

Research has revealed cancer patients value maintaining their mobility and staying pain free as the two most important elements for having a good quality of life.

The researchers have also conducted an adapted version of the study in the UK and mainland Europe and found that these same factors (staying pain free and mobile) were similarly key factors for overseas cancer sufferers.

"So British, French and German people all generally prioritise being fit enough to take a walk outside of the house or to avoid high levels of pain," he says.

"It will be interesting to see if these views are held in non-westernised and industrialised nations."

He said clinicians had to consider the psycho-social aspects of treatment options.

"Historically, medical decision making has been around clinical measures of cancer progression so if you can prevent its progression that is the primary focus," he said.

"That is still massively important but more patient-centred issues to do with leading a full life you have in the time remaining is of great importance."

Norman uses the example of patients undergoing a powerful course of chemotherapy which is designed to give patients an extended life expectancy but comes at the cost of poor health, due to chemotherapy's adverse side effects.

"Our work allows the balancing of those two factors to give a better idea of the true value of therapy to the person receiving it," he says.

The researchers have nearly finished the Australian arm of the project and expect to roll it out in additional countries around the world before compiling the results.

Norman says once they have compiled the study results they hope to disseminate it as much as possible to policy makers and health department officials who are responsible for undertaking economic evaluations and implementing necessary changes.

"It's about convincing people that we are capturing something about quality of life with cancer patients that is important and should be considered when we make decisions about what to fund," Norman says.



Research shows transgender population at 'margins of society'

By April Kleer



Associate Professor Sam Winter,

Prejudice, discrimination, harassment and abuse are damaging to transgender people's health and wellbeing in ways that are not properly understood, even among health professionals, according to a paper recently published in *The Lancet*.

Lead author, Associate Professor Sam Winter from Curtin's School of Public Health, explains that transgender people are often excluded from society due to themselves and their needs being little understood by health care providers, legislators, policy makers, family members and people in general.

"Transgender people face stigma on a daily basis throughout their lives," Winter says.

"Prejudice, discrimination, harassment, abuse and violence all conspire to drive them to the margins of society where they experience social isolation and poverty, and alarmingly, poor health and wellbeing.

"Worldwide, transgender women are 49 times more likely than the general population to be HIV positive and more than 2,100 trans people have been murdered in the last eight years – and those are the ones we know about," he says.

"Transgender people's issues are often conflated with sexual orientation – for instance a transgender woman will often be perceived and treated, including by primary health care providers, as a gay man.

"Further sustaining and aggravating the stigma is its formal classification. Currently, transgender people are diagnosed with one of a number of 'gender identity disorder' diagnoses, which the World Health Organization (WHO) classes as mental disorders," Winter says.

Winter was part of a WHO Working Group that in 2012 made a proposal to replace these diagnoses with one called 'gender incongruence', and relocate it to a new chapter linked to sexual health. The historic proposal will be considered during the annual meeting of WHO's governing body in May 2018.

"Further sustaining and aggravating the stigma is WHO's diagnostic classification of transgender people as 'mentally disordered'."

He explains that gender incongruence means these people experience life, their inner selves, in a gender different to the sex they were assigned at birth.

"Gender incongruence is not a lifestyle choice," Winter says.

He also says that based on population studies, it is estimated that there are approximately 25 million transgender people worldwide.

The actual numbers of gender incongruent people are unknown because since they so often face stigma and discrimination, they may avoid expressing their gender incongruence, or avoid identifying publicly as transgender.

"It is not surprising that they avoid openly identifying as transgender and therefore remain 'hidden' in actual statistical data," he says.

"Regardless of numbers, governments and public and private entities should invest in public education on the subject of gender incongruence so that transgender people can enjoy full social inclusion and benefit from the same health and wellbeing that the rest of society takes for granted," Winter says.

"Those working with transgender people, including primary health care providers, must be trained in the area to provide services that are sensitive to transgender people's rights and more responsive to their needs."

The paper, *Transgender people: health at the margins of society*, is available at thelancet.com/series/transgender-health



Associate Professor Stuart Johnson

Going with the grain to combat diabetes

By Nik Malane

Curtin researcher Associate Professor Stuart Johnson has discovered that a grain used mainly in animal feed in Australia contains properties which not only provide nutritional benefits to humans, but also have the potential to help combat one of the world's fastest growing chronic conditions, type 2 diabetes mellitus.

Globally, one in 11 adults (415 million people) has diabetes. It's the fastest growing chronic condition in Australia and around the world, with type 2 diabetes, commonly associated with lifestyle factors, accounting for 85 per cent of all cases¹. As our busy lives get even busier, those lifestyle factors such as choosing convenient food options with potentially less nutritional value over preparing healthy meals, further increase our risk of developing the disease, for which there is no cure.

Food scientist, Associate Professor Stuart Johnson, from Curtin's School of Public Health and Curtin Health Innovation Research Institute, has spent his career researching legumes such as lupins and chickpeas to understand their potential as health beneficial foods, and using these foods to create healthy and palatable products. This quest led him

to a truly unique research pathway: investigating sorghum as an undervalued cereal grain that can help battle chronic diseases, including diabetes.

Sorghum is a grass or cereal grain similar to wheat. Originating in Ethiopia, it's used in Africa for a range of purposes including as a staple food and in fermented beverages such as beer. Globally, it's the fifth most produced grain (behind wheat, maize, rice and barley), however in Australia, is considered to be a low-value grain predominantly used in animal feed.

"When you look at sorghum's overall nutritional composition, it just looks like wheat; mainly starch, when in fact it's absolutely not in terms of the way the body handles it, in terms of its digestion and bioactive phytochemicals (the special compounds in plants)," Johnson explains.

Johnson's research project, an Australian Research Council funded collaboration between the University of Wollongong and industry partner organisation Sanitarium Health & Wellbeing, entitled 'Slowly digestible, high antioxidant sorghum: a new wholegrain food paradigm to help combat type 2 diabetes', first took shape after Johnson attended a meeting while working interstate to find out more about sorghum.

The meeting's focus was on improving the quality of sorghum as pig feed to produce larger pigs at a faster rate, however, graph after graph revealed sorghum's slow starch digestibility, thus reducing energy intake, and high levels of polyphenolics – commonly known as 'antioxidants' – that may assist in reducing the progression of chronic diseases. Johnson came to the realisation that this grain could be highly beneficial for humans at risk of developing lifestyle diseases associated with over-energy nutrition, including diabetes, yet surprisingly little research had been conducted in this area.

"I looked in the literature and there was no information, none whatsoever. No experimental information in this paradigm at all," he says.

Soon after, Johnson and his colleagues secured the Australian Research Council Linkage grant. The project, commencing in 2011 and spanning four years, featured three key stages. Initially, particular varieties of sorghum – white, brown and red coloured grains were screened to test their starch digestibility and antioxidant levels. Then using selected grains, sorghum-based flaked breakfast cereals were developed at Sanitarium and lab-tested for their antioxidant capacity and digestibility.

The final stages of the project involved human trials conducted at the University of Wollongong using four different kinds of Sanitarium Weetbix – wheat, and white, brown and red sorghum varieties. Referred to as 'post-meal trials' this stage involved monitoring appetite, antioxidant capacity of the blood serum and blood glucose levels for glycaemic index – all of which are protective against chronic disease – over a two or three-hour period. A similar study was also conducted in collaboration with Deakin University but used pasta instead of breakfast cereal, enriched with the same sorghum flours.

"Our results surprisingly showed that red sorghum, but not white or brown, had high appetite suppression – they actually changed the appetite hormones in participants – and raised the antioxidant protection markers in the blood."

"Our results surprisingly showed that red sorghum, but not white or brown, had high appetite suppression – they actually changed the appetite hormones in participants – and raised the antioxidant protection markers in the blood. The red sorghum products were also considered to be palatable," Johnson explains.

The research project informed the development of the first ever staple food made entirely from sorghum, Sanitarium's gluten-free Weetbix containing high levels of antioxidants, and has laid the foundation for the creation of more sorghum-based products that promote healthy eating, particularly for those at risk of developing diabetes.

"That's the sort of the model I work on: 'human nutrition informed agriculture'. We're trying to loop back into the agriculture and the plant breeding specifically for the future needs of different populations rather than it all being driven by the agriculture – around yields," Johnson says.

A 'PLAN B' GRAIN AS TEMPERATURES RISE

Sorghum's drought resistance and ability to thrive in high temperatures makes it an alternative to other grains in the future. Sorghum plants' metabolism and production actually increase in temperatures up to 40 degrees and during times of drought it can stop growing and wait rather than simply dying off.

Already a common staple food in Africa, it's often the only crop grown in certain areas across the continent in the warmer months. Many traditional recipes which involve sprouting and fermenting sorghum have been developed and passed down through generations.

"My interest is to understand how we can leverage traditional knowledge to develop commercially viable processes to make sorghum a staple grain in the future, globally, because we may need this 'plan b grain' if climate variability is so great that other crops start failing, which actually happened in Queensland, in the wheatbelt, about ten years ago," says Johnson.

NETWORKING FOR BETTER HEALTH

By Karen Green

With health reform and new intervention programs needing to be fully evidence-based, data-driven research is vital, particularly given the needs of an ageing population and the associated rise in many chronic diseases. Accordingly, the expertise of the Health Systems and Health Economics research team at Curtin's School of Public Health is in increasing demand.

The Curtin team, led by Associate Professor Suzanne Robinson, is working with the WA Primary Health Alliance (WAPHA) to evaluate the demand and supply of health services across the state, with a particular focus on vulnerable groups.

WAPHA operates three of the 31 Primary Health Networks (PHNs) established by the Commonwealth Government in 2015 to address six priority areas: mental health, Indigenous health, population health, health workforce and eHealth and aged care.

With Curtin appointed as academic partner, the three PHNs – Perth North, Perth South and Country WA – are tasked with coordinating the delivery of primary care services in WA.

“Our role is to gather and analyse health data – obtained from hospitals, general practice and other health service providers – and work with PHN and health service colleagues in identifying unmet need for services for vulnerable populations across WA,” Robinson explains.

The program is bringing together researchers, practitioners and policy-makers to share learning and good practice around evaluation and research.

“The partnership draws on the University's strengths in data analytics, health systems and health economics research and its focus on building capacity across these areas in WA.”

The initiative will be particularly beneficial for PHN regions where high rates of chronic disease and mental health conditions are coupled with high negative scores on the measures for the social determinants of health, including socio-economic status and education levels.

Curtin's data analysts are therefore taking a place-based orientation that enables the investigation of attributes of the geographical areas. The research outcomes enable the PHNs to make informed decisions about resource allocation and service redesign.

“The combination of robust data analysis, enhanced local knowledge and engagement with stakeholders provides the PHN with rich, local intelligence that informs funding decisions that address the needs of marginalised groups in locations where people are likely to have the poorest health status.

“The collaborations demonstrate how universities and industry partners can together develop a strong, local evidence base to underpin policy and practice,” adds Robinson.

The Curtin team is also working with WAPHA to provide evidence-based development and implementation of models of care under the new HealthPathways program.

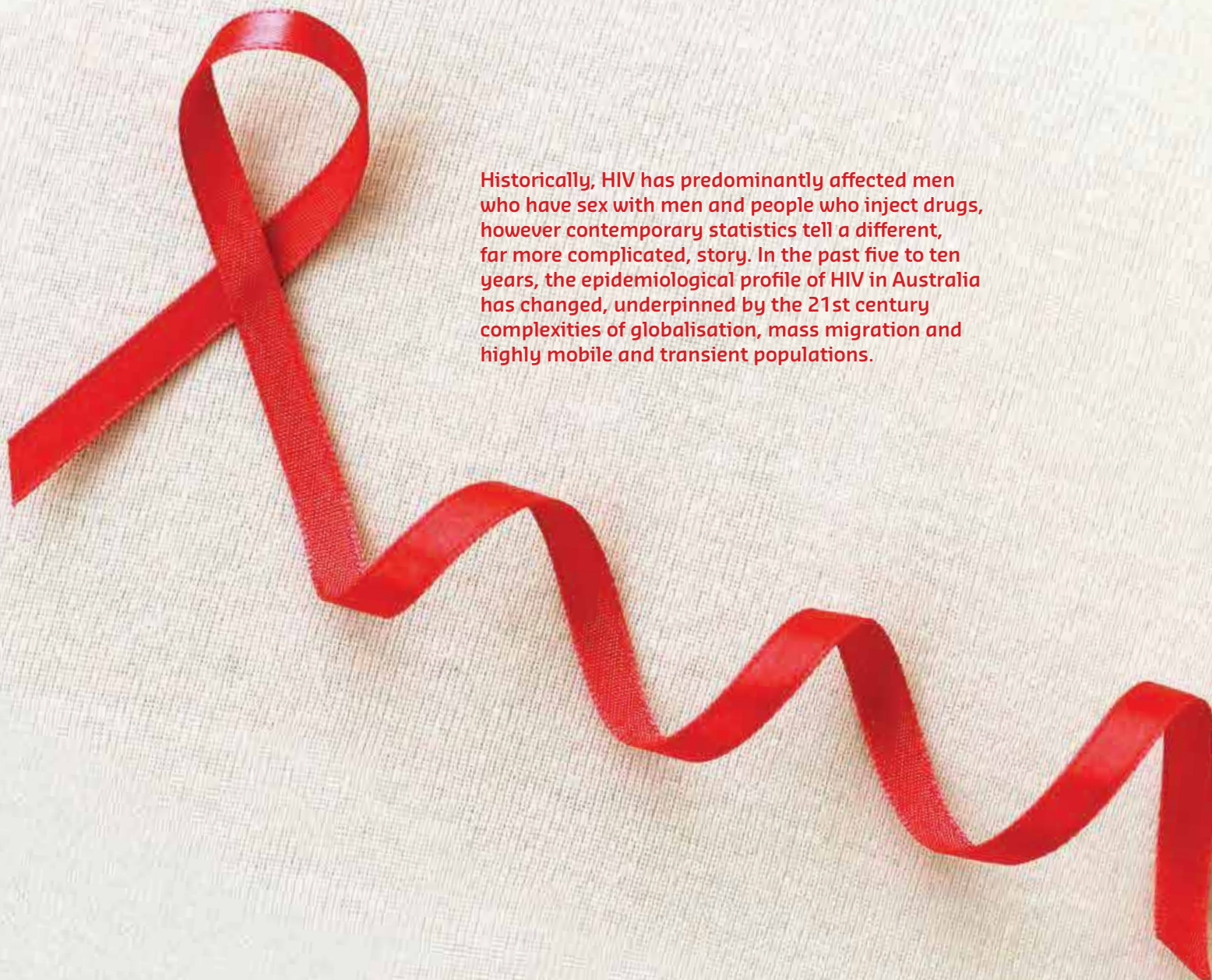


“HealthPathways is a resource that integrates primary care, specialist services, hospital services, community and social support services. For GPs and primary care clinicians it offers information on health services and referral options for the management of specific conditions.”

“The program is bringing together researchers, practitioners and policy-makers to share learning and good practice around evaluation and research. We recently led an evaluation workshop at the HealthPathways conference in Christchurch, New Zealand. The outputs from the workshop will inform future work, particularly regarding the longer term impact of HealthPathways on patient outcomes.”

Mobility drives new **HIV** epidemic

By Arianne Chavez



Historically, HIV has predominantly affected men who have sex with men and people who inject drugs, however contemporary statistics tell a different, far more complicated, story. In the past five to ten years, the epidemiological profile of HIV in Australia has changed, underpinned by the 21st century complexities of globalisation, mass migration and highly mobile and transient populations.

Australia has long been admired for its swift, often controversial, response to the emergence of HIV and AIDS in the early 1980s, which was characterised by cooperation between federal and state governments and advocates from groups most at risk. AIDS diagnoses peaked in 1994, and declined rapidly with the introduction of antiretroviral therapy. Very few people in Australia are now diagnosed with AIDS. HIV diagnosis rates have remained relatively low, when compared to similar countries, and, in the past few years, have stabilised at approximately 1,000 people per year. Australia's goal is for zero new HIV infections by 2020.

While the national HIV diagnosis rates are still highest in men who have sex with men, there are indications of a smaller, but significant, epidemic emerging. Over the last decade, there has been a noticeable increase in HIV diagnoses among migrant and mobile populations in Australia, which is reflective of global trends. Gay and heterosexual people, and their partners, from high HIV prevalence regions, most noticeably Sub-Saharan Africa and South-East Asia, and Australian men who travel to and from countries with high HIV prevalence, are most at risk.

According to 2015 figures from the Australian Bureau of Statistics, 28 per cent of Australians were born overseas, the highest proportion in 120 years, and the percentage of residents born overseas has increased every year for the past 15 years. Additionally, many Australians are highly mobile, travelling regularly for work or pleasure, often to countries with high HIV prevalence. In 2014-15 there were 16.9 million departures, comprising 9.2 million Australian residents departing short-term, 7.3 million visitors and 391,200 permanent and long-term departures.

The Seventh National HIV Strategy 2014-2017 Report identifies migrant and mobile populations as priority groups in the HIV response. The issue is complicated, however, by the divergent socioeconomic and cultural drivers of the behaviours contributing to their higher HIV transmission rates. While there are currently initiatives to target these priority populations, they are typically ad-hoc or pilot in nature, and poorly coordinated or fragmented.

In the 2014 report, HIV and Mobility in Australia: Road Map for Action, Dr Roanna Lobo, Research Fellow from Curtin's Sexual Health and Blood-borne Virus Applied Research and Evaluation Network, and Ms Gemma Crawford, Research Fellow from the Collaboration for Evidence, Research and Impact in Public Health, in collaboration with colleagues from La Trobe University, examined what is required to effectively manage these new HIV epidemics.

Dr Lobo suggests context is critical to understanding the contemporary HIV landscape and developing effective strategies for emerging groups at risk of HIV transmission.

"Migrant and mobile populations are not a homogeneous group. There are very significant contextual differences between an Australian male who contracts HIV when travelling to a country with high HIV prevalence, for example, and a woman from a country in Sub-Saharan Africa, who is migrating to Australia," Dr Lobo said.

"For the woman, barriers to testing and treatment in Australia may include visa eligibility, language, stigma and low perceived risk. By contrast, for Australian-born men who acquire HIV overseas, perceptions of risk both prior to and during travel, and the networks they participate in, both on and off line, are important."

Crawford, who is completing her PhD examining HIV risk for Australian male expatriates, and longer-term travellers, agrees.

"We need tailored, relevant strategies to reach sub groups. Disregarding variations can lead to misguided generalisations about health needs, and lower utilisation rates of health services," she says.

"For travellers and mobile workers, our response must extend beyond travel campaigns and education. We may require interventions in the places that risks are happening, and we need strong links into the peer networks that may influence these risks. For migrants, increasing access to HIV testing and reducing the impact of stigma and discrimination is vital."

While it's clear the changes to Australia's HIV epidemic are multi-faceted and complex, they remain poorly understood. Dr Lobo believes the paucity of surveillance data has contributed to the difficulties in developing a comprehensive understanding of, and effective approaches for, priority groups.

"Perhaps one of the most critical components for an effective public health response to Australia's changing HIV profile is reliable surveillance data, and effective evaluation to inform funding, policy decisions and practice. Until recently, a national approach to surveillance and monitoring remained elusive," Dr Lobo said.

Australia's increasingly mobile and changing migrant population will play an ongoing role in the nation's HIV epidemic. The research team at Curtin continues to lead a range of research and advocacy activities, including a national Community of Practice for Action on HIV and Mobility, to maintain momentum on the issue.



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