The Australian Prevention Partnership Centre
Systems and solutions for better health

Outcomes report 2013 – 2018

Changing the system

A partnership approach to chronic disease prevention

The Australian Prevention Partnership Centre

Outcomes report 2013 – 2018: Changing the system

The Australian Prevention Partnership Centre is funded by NHMRC, Australian Government Department of Health, ACT Health, Cancer Council Australia, NSW Ministry of Health, South Australian Department for Health and Wellbeing, Tasmanian Department of Health, and VicHealth.

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Dedicated to Sonia.

Director's message

I am pleased to report that in our first five years we have progressed towards our vision: to establish an effective, efficient and equitable system for the prevention of lifestyle-related chronic disease.

Professor Andrew Wilson

When we started The Australian Prevention Partnership Centre five years ago, we knew from the outset that we would learn as much from how we worked as from the research projects we supported.

As one of three NHMRC Partnership Centres for Better Health, the Prevention Centre model was something of an experiment for Australia – established to trial co-produced partnership research, with the aim of increasing the use of research evidence in policy and practice.

So, as well as producing internationally significant research, our aim has been to transform the way researchers, policy makers and program practitioners work together in chronic disease prevention.

The Prevention Centre has become a research project in itself. We have learned a lot along the way and continue to learn. The size and complexity of our program of work has been substantial. It took longer to become operational than we originally anticipated, and the challenge of pulling together so many people, agencies, processes and governance structures required considerable negotiation.

We have also had to learn how to foster engagement across the country. Building trust and relationships among researchers, policy makers and practitioners across the Prevention Centre has been key to our work.

In our first five years, we have created a strong platform for research translation through effective collaborations with policy agencies. We have built capacity in system thinking and created new knowledge about system change for prevention.

We have embedded policy makers into research projects and researchers into policy environments, ensuring that outputs are policy relevant and building a prevention workforce for the future. We have built a national profile and are widely recognised and highly regarded by academics and policy makers in the prevention space.

Among our many research achievements, we have demonstrated the value of dynamic simulation modelling in synthesising complex information, made a significant contribution to a set of national liveability indicators to underpin decisions about urban planning for health, developed a way of costing healthy vs unhealthy diets, established and tested new methods for engaging communities in prevention, and developed a stronger understanding of the likely value of prevention to Australia.

We have provided new ways of communicating the value of prevention to governments, developed tools, frameworks and strategies to boost the prevention system, and increased the capacity of researchers, policy makers and practitioners to use evidence and systems approaches.

The extent to which we have influenced policy remains to be seen. There have been some barriers, including political changes, competing influences on policy decision-making, and the time lag between policy and research.

However, in the first five years I believe we have successfully established a new way of working that will benefit researchers and policy makers, and ultimately the health outcomes of Australians. This achievement would not have been possible without the Partnership Centre model.

As we start the next five years, we are thinking more broadly and creatively about what prevention of chronic disease means beyond the traditional concerns about major risk factors and the major diseases.

We now have good evidence about what we could do better in prevention. Our mission into the future is to better inform the decisions about what we do and how we do it – putting the research into action.

About the Prevention Centre

The Australian Prevention Partnership Centre is a national collaboration working with leading academics, policy makers and practitioners from across Australia. Our aim is to build an effective, efficient and equitable system to prevent lifestyle-related chronic disease.

A systems approach

A systems approach recognises that chronic diseases and their risk factors are complex, dynamic and have a web of interconnected elements. Rather than linear, cause-and-effect responses, systems practice has the potential to be more effective in addressing complex problems, like chronic disease.

How we work

We are one of three Partnership Centres for Better Health established by the National Health and Medical Research Council (NHMRC). These are national collaborations of policy, practice and research organisations working together to increase the uptake of evidence in policy and practice.

We work in partnership with policy makers and practitioners from project design through to implementation. Working this way means we focus on areas of interest to government and policy agencies.

Our governance and leadership structures are founded on core elements:

Governance Authority: is responsible for approving the budget, projects and research priorities of the Prevention Centre. It provides representation from each of the Funding Partners and is the group to which the Prevention Centre Director is accountable.

Leadership Executive: advises on operational aspects of the Prevention Centre, provides direction for the research agenda and capacity building activities. Members provide technical expertise and leadership in their specialties when required.

Scientific Advisory Committee: international members who function as an external reference group and advise on overall scientific direction.

Research project teams: investigators, policy makers and practitioners work together to co-produce research.

Coordinating Centre: is responsible for managing the business of the Prevention Centre, including project oversight, funding and accountability, and delivering a number of strategies to enable the research partnership.

Standing Capacities: small hubs of individuals with specific expertise provide advice and input as required to policy and practice partners working across the Prevention Centre.

Adding value

We delivered on all of the projects identified in the initial work plan. A further 19 new projects not identified in the original work plan were initiated in response to new opportunities and priorities expressed by Funding Partners.

We demonstrated our capacity to effectively manage a large and complex collaboration and program of work. We delivered projects on time and within budget, and we provided a positive return on investment for our funders (page 9).

Quarterly reporting allowed us to keep in close contact with our researchers and their projects. This enabled us to identify and translate new knowledge within a much shorter timeframe than would have been possible under traditional research funding arrangements.

In addition, we offered value to our members and collaborators through diverse activities, including planning and organising communication and training events, gathering and acting on feedback from across the Prevention Centre, and networking and maintaining relationships both internally and externally.

We developed and implemented strategies to increase the use of evidence produced through the Prevention Centre in practice and policy; connected the people and activities of the Prevention Centre that are spread geographically across Australia; and developed skills for research, evaluation and evidence-based practice among both researchers and policy makers.

Communicating evidence

Working collaboratively to produce evidence for policy requires a new form of communications that takes into account the different cultures and requirements of researchers, policy makers and practitioners.

A communications team embedded within the Prevention Centre is responsible for finding ways of strengthening the communication of evidence for policy makers. A key innovation is the inclusion of the team as a part of the research process from the outset of each project to advise on messaging and impact.

We found that a journalism approach is effective, where key messages are conveyed in such a way that attracts the attention of policy partners without 'dumbing down' the science.

Our communications are user-focused, where at every step of the process we check that the format and style of content is aligned with the purpose and audience.

We explored the use of storytelling, visual communications, webinars and podcasts to translate knowledge and produced a range of concise, accessible resources that provide succinct summaries for busy policy makers and practitioners.

We found a communications capacity is central to the success of co-production, which relies on building and nurturing networks and trust between researchers, policy makers and practitioners. We believe a well-resourced communications function needs to be embedded from the outset in future research partnerships.

Tools to translate

We are communicating research findings clearly and concisely and in a form policy makers can understand and act on.

Our approach	Our products	Our impact
Focused on audience and purpose	• Evidence Reviews • Evidence Syntheses • Findings Briefs	Communications expertise is central to the dissemination of new knowledge and the success of collaboration research. Our approach enabled the Prevention Centre to bring together our many members and allowed policy makers to have their voices heard. We improved the communication of research to policy makers and facilitated sharing of ideas and collaboration among individuals who might not otherwise have worked together. Our resources helped to confirm thinking around an issue, justify existing policy positions, or to determine priorities for future investment.
Used storytelling to provoke an emotional impact	• News stories • Impact case studies • Personal profiles • Blog	
Created infographics to enhance the narrative	• Videos • Webinars • Podcast	

Our impact: What did we achieve?

Sax Institute CEO Professor Sally Redman

The Prevention Centre was established to address a major need in the Australian research environment – to try a new way of approaching partnership research that allowed the time, resources and flexibility to ensure a greater impact on policy and practice than could have been achieved were each project funded individually.

Have we been successful? It is still too early to define clear impacts on policy, but we are making significant contributions to changes in prevention planning and evaluation, to our partners' ability to design and use concepts and tools, and to the methodologies that are now being used to tackle the prevention of chronic disease in Australia.

We know from our centre-wide evaluation that our policy partners valued their connection with the Prevention Centre, especially the linkages, dialogue and trust it generated between researchers and policy makers. The value of our approach is demonstrated by the renewed commitment of the policy agencies to refund the Prevention Centre for a further five years.

What I think has been really successful is the opportunity to work closely with a number of policy agencies to identify innovative and cutting-edge questions outside the constraints of a normal project funding round. This way of funding research has allowed us the time and flexibility to genuinely explore an agenda and work on it together.

The Prevention Centre has given us time to undertake challenging work, such as our research on food insecurity in Aboriginal communities.

I also think we can say that we changed how our partners are thinking and talking about prevention, including how they conceptualise chronic health problems and what potential solutions might look like, how they understand prevention contexts, and the sort of information they share with colleagues to inform or persuade them.

During the first five years, we put a lot of energy into drawing people into the collaboration and generating a sense that the whole was greater than the sum of the parts. This has enabled us to build a solid platform for the next phase of the Prevention Centre and one that will yield many gains in the coming years.

With most of the projects identified in the original work plan completed, we now need to cast a wider lens to pick out what we learned and how we can make this research evidence more useful to policy agencies.

With a further five years of funding from the NHMRC and other partners, the Australian Government Department of Health, the Health Departments of New South Wales, Australian Capital Territory, South Australia and Tasmania, and Cancer Council Australia and VicHealth, we look forward to turning the new knowledge identified in this report into sustained action.

Return on investment

We provided our Funding Partners with:

- New knowledge, methods and thinking
- Support in designing and undertaking program evaluation
- Insights into the implementation of key programs
- Increased capacity among policy partners to use systems thinking and undertake research
- Relationships, partnerships and trust that have grown beyond the work of the Prevention Centre
- A suite of resources translating evidence for policy makers.

Our partnerships led to:

- Research projects that are more relevant and useful to end users
- Relationships and partnerships that have benefits across the Prevention Centre's network
- Dynamic simulation models that benefit from access to data, expertise and senior decision makers within health departments
- Evidence resources that match the needs of policy makers.

Forging strong partnerships

We achieved high levels of engagement and as a result can demonstrate a significant increase in the size of the collaboration since our inception.

Initially, 20 agencies from five states and territories were part of the research program. This grew to 36 agencies across all states and territories.

The investigator team also grew substantially, from 31 individuals (17 academic-based, 11 system-based, 3 working across both) to more than 200 individuals from 22 research institutions and additional practice settings, who implemented 40 separate research projects.

When surveyed in July 2018, members of the partnership rated their experience with the partnership on average 7.2 out of 10, a strong improvement from 6.5 at baseline in June 2015.

A social network analysis of the Chief Investigators and project leads, conducted in 2014 and again in 2017, saw the density of citing each other's work increase from 18% to 24%, and the density of knowing enough about someone to tap their expertise increase from 29% to 44%.

Our stakeholders reported varied reasons for becoming involved, from the opportunity to be part of a national network of people interested in chronic disease prevention, to the opportunity to try new ways of working and a way of accessing resources and expertise.

For many, having the opportunity to co-produce knowledge with other academics, practitioners and policy makers was a key motivator for wanting to work with us.

This success in engagement was partly due to our funding model, which provided the flexibility and resources to bring practitioners, policy makers and researchers together at many meetings and events, as well as teleconferences and webinars.

Our reach

Capacity building

A key element of the Prevention Centre's work is building the capacity and skills of individuals, groups and organisations to produce and use research for improved chronic disease prevention. This was achieved through targeted activities and the collaborative research process.

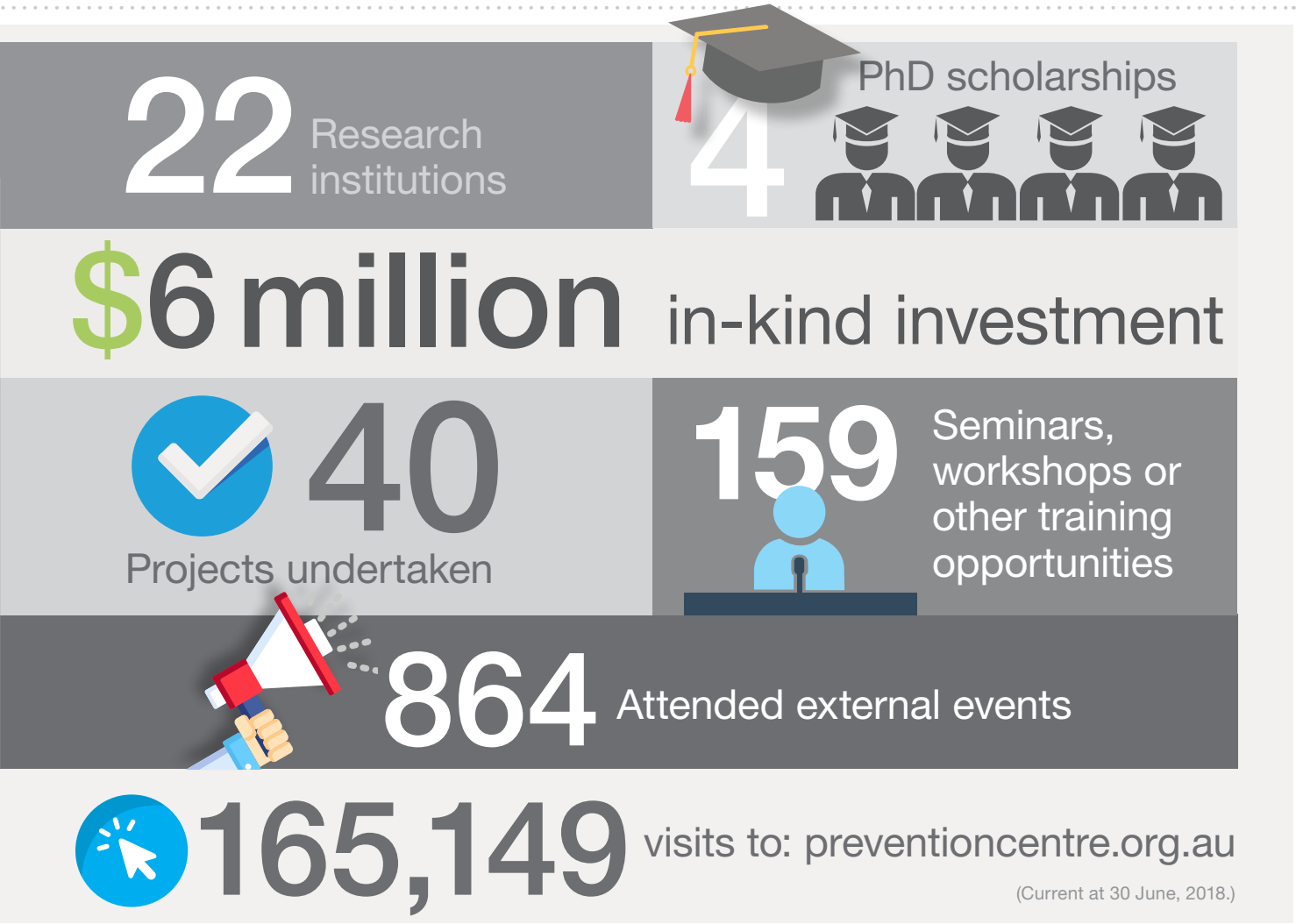
We brought together more than 850 people in 159 seminars and other training opportunities. These built expertise in systems science, evaluation and other areas of interest to those working in prevention across Australia. This work enabled us to identify new opportunities and needs.

We invested heavily in building the next generation of prevention researchers, with more than 20 early to mid-career research positions, six internships and four PhD scholarships. We sought to provide early career researchers with opportunities to take the lead on innovative projects and to be involved with the broader work of the Prevention Centre.

We established a Research Network that has enabled early and mid-career researchers to support each other and also created opportunities for them to connect with policy makers, practitioners and senior researchers.

We have a program dedicated to developing systems thinking skills, including workshops, the development of resources, and a postgraduate course on Systems Thinking in Public Health.

We also established a national network of federal and state and territory evaluation managers to build new skills in the evaluation of complex public health interventions. Participants have remained connected to provide an informal network of support and advice.



Co-production

Knowledge co-production – when researchers and research users collaborate in all stages of the research process – is internationally recognised as a key way of improving the uptake of evidence in policy and practice.

The Prevention Centre trialled co-production on a scale not previously seen in Australia. Our work went beyond simply putting academics in touch with policy makers. All of our research projects involved a level of co-production, although there was variation in how this was undertaken and whether it was successful.

We facilitated co-production by providing access to a network of academics and policy makers in the prevention space; through formal processes, such as the need to specify policy-practice partnerships in research proposals and approvals; and through our governance arrangements that ensure our research is guided by our Funding Partners.

However, co-production can be challenging. Researchers and policy makers have different timeframes and priorities. They had to learn new skills in working together, and not all were interested in doing so. It also requires a greater level of trust than many were used to.

For policy partners, co-production was challenged by competing demands for time and resources, staff movements, and practical issues such as accessing health agency information systems or policy and procedure-related documents.

For researchers, the concern was that time invested in co-production resulted in lower publication rates. This was a particular concern for early career researchers trying to address the traditional measures of academic impact. Some found it difficult to frame their research findings in ways that are useful to policy makers and practitioners.

Our initial aspiration to embed researchers and policy makers within each other's organisations was particularly challenging. This was largely due not to a lack of will, but to practicalities such as employment issues and access to IT systems.

All of this means that there was a wide variation of co-production in our projects. The extent to which we achieved co-production is a continuum, ranging from research resembling contracted work to projects that are fully co-produced.

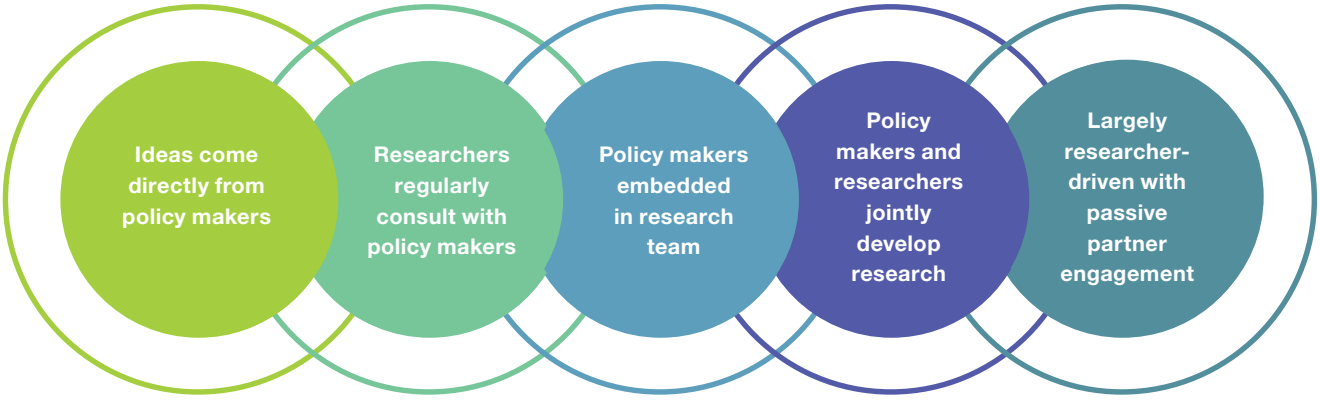
Despite these challenges, in its first five years the Prevention Centre promoted the model of co-production and demonstrated its effectiveness. We created many opportunities for researchers and policy makers to come together to share perspectives and reflect on priorities.

Our Funding Partners and others endorsed this way of working, and commented on the innovation and value of our approach.

"Researchers, policy makers and practitioners have had to learn new skills for working together. Co-production usually requires substantial time commitments from all parties, and this has not always been possible."

- Professor Andrew Wilson

Examples of co-production within the Prevention Centre



New evidence and knowledge

We delivered internationally significant knowledge about the application of a systems approach to the prevention of chronic disease.

Decision-support tools for complex problems

We delivered six dynamic simulation models, which are being used by health departments around the country, including in Tasmania, Queensland, ACT and NSW

Systems methods

We developed methods that apply systems thinking to chronic disease prevention, including social network analysis, dynamic simulation models, and tools and methods that engage local communities in identifying and addressing key issues in prevention

Expert advice on chronic disease prevention strategies

We developed a set of prioritised actions to guide national chronic disease prevention policy and strategy. Our rapid evidence reviews informed the National Strategic Framework for Chronic Conditions and the ACT Government's Preventative Health Strategy

National liveability indicators

We developed measures of the built environment and their impact on health that are being used in urban planning policies to help create healthy liveable communities, and supported an Urban Observatory that measures the liveability of Australian cities

Price of healthy food

We found that recommended (healthy) diets are cheaper than unhealthy diets, and developed a standardised way to measure food costs that will help to answer key policy questions around the difference in the price and affordability of healthy and unhealthy diets

Evaluation of complex prevention programs

We supported policy makers to better capture the impact of their prevention programs, and contributed to evaluations of the ACT's whole-of-government Healthy Weight Initiative, NSW Health's Get Healthy at Work initiative and the NSW Knockout Challenge, a preventive health program across Aboriginal communities

Food policy map for poor nutrition and obesity

We worked with more than 100 experts from 53 organisations to produce scorecards and priority recommendations for food- and obesity-related policies in all Australian jurisdictions and set out a roadmap for government action to improve population nutrition

Common understanding of the 'business case' for prevention

We worked with health economists, health departments and treasury departments to develop a more accurate and detailed analysis of the business case for prevention

Aboriginal food insecurity

We explored food insecurity in urban Aboriginal communities to identify key drivers in this population to improve health by increasing the availability, accessibility and affordability of healthy food

Scaling up

We developed a framework that identifies steps to help policy makers and practitioners to use best practice when scaling up public health programs

Inequity in healthy eating

We developed a framework to guide whole-of-government policy actions to address inequities in healthy eating

Policy and program implementation

We identified the strengths of NSW Health's Population Health Information Management System (PHIMS) – insights which inform how to make methods used to track policy and program implementation more accurate and useful

Learning from local communities

We showed that it is possible to take a systems thinking approach in research into prevention in communities, and to work with communities to understand local prevention systems and to guide and monitor change at the system level

Influencing decision-making

The Prevention Centre, like all large cross-sector collaborations, is a complex work in progress. Our first five years saw the formation of a national partnership between diverse stakeholders and the generation of a sound platform for further, more expansive, partnership work.

Our stakeholder evaluation identified many early impacts on specific policy processes, but perhaps the most notable achievement at this stage is that policy makers' participation in the collaboration is changing how they think and talk about prevention problems, contexts, solutions and methodologies. This appears to be a potentially transformative contribution to policy.

What is working?

- ✔ Using multiple methods (newsletters, workshops, forums, community of practice, etc.) to achieve high levels of engagement
- ✔ Bringing people together to interact and exchange ideas
- ✔ Developing innovative ideas, tools and methods
- ✔ Generating capacity development opportunities that combine stimulating ideas and hands-on learning
- ✔ Giving policy makers and researchers access to each other's expertise, data and methods
- ✔ Increasing understanding of systems thinking and its policy application
- ✔ Developing a prevention discourse, including making the case for investment in prevention

What areas should be strengthened?

- Ensuring all key stakeholders can actively contribute to ideas, methods and tools
- Increasing the focus on utility – better demonstration of the policy/practice application of ideas and methods, especially those informed by systems science
- Strengthening the exchange across projects to reduce silos and duplication, and increase synergies
- Engaging practitioners more as the focus of the Prevention Centre moves towards implementation
- Engaging rural and remote policy makers and practitioners and developing programs relevant to them

The Prevention Centre is making a positive change in ...

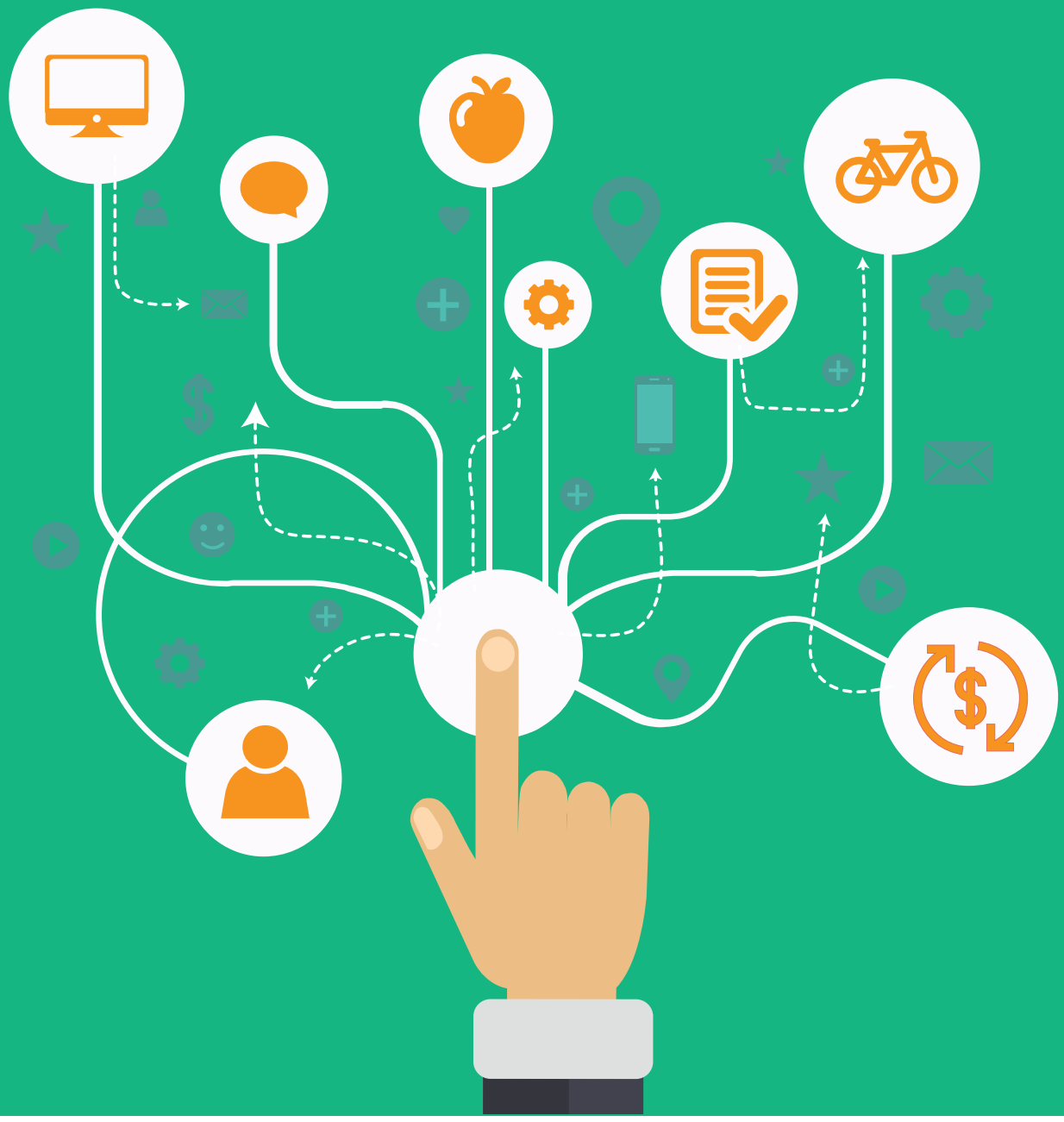
- Prevention policy/program planning and evaluation
- Partners' capabilities to design and use concepts, tools and methods
- How partners are thinking and talking about prevention, including:
  - how they conceptualise chronic health problems and what potential solutions might look like
  - how they understand prevention contexts
  - the sort of information they share with colleagues to inform or persuade them
- The methodologies being considered and used to tackle prevention
- Linkage, dialogue and trust between researchers and policy makers

Our findings and impact

This section details key findings and impact of our projects and describes the experiences of researchers, policy makers and practitioners with the Prevention Centre.

New methods, tools and thinking

We develop, test and make widely available methods and tools to improve prevention decision-making and practice. These include dynamic simulation models, systems methods and evidence syntheses.



Below the surface: using systems thinking for a deeper perspective on chronic disease

The Prevention Centre has become the leading agency in Australia in building understanding of the value of systems thinking in public health and capacity to use systems-thinking tools.

Systems thinking pushes us to explore the underlying, interconnected causes of a complex problem to find effective, sustainable answers.

In the case of lifestyle-related chronic disease, the Prevention Centre used systems thinking to look beyond individual choices, such as urging people to eat healthy food and to be more physically active. The approach explores how the social determinants of behaviour, like the built environment, lack of access to healthy food, poverty and education, interact to affect health outcomes.

We did this through training workshops and demonstration projects with partners, including a productive relationship with colleagues in Canada. As with all our work, we built on the pioneering work of several of our Chief Investigators.

Since 2013, the Prevention Centre used systems thinking in different ways in all of its research projects and pioneered the use of systems tools and methods to better understand complex public health problems and inform decision-making.

Our Standing Capacity on Synthesis focused on developing dynamic simulation modelling tools, which enable us to use a range of published evidence, other information and data to map and model complex problems.

Our modelling is a powerful tool for engaging academics, policy experts, practitioners and community members in thinking through the decision process even if they have diverse views. It enables stakeholders with different views on the best approach to compare the likely impact in a safe way before final decisions are made.

Such tools have the advantage of allowing decision makers to experiment with different scenarios and policy options before they are implemented to reduce the risk of negative consequences and unexpected outcomes.

Another Standing Capacity, Systems Science and Implementation, assisted researchers, policy makers and practitioners to strengthen the design and implementation of their work by considering systems approaches.

The Prevention Centre's research into systems seeks to work across other sectors like transport, housing and education because many factors that influence individual lifestyle behaviour and other non-lifestyle related risk factors for chronic disease (such as air quality) are determined outside the health sector. Research that aimed to align different systems includes the development of national liveability indicators and a project into how to create a healthy and equitable food system.

Other research projects explored factors in a local system that enable or hinder the success and sustainability of prevention efforts – how an intervention combines with the local system, how it changes roles and relationships, how it distributes resources and how it displaces previous activity. An example of this work is the Prevention Tracker project (page 45).

The Prevention Centre also used systems thinking to explore ways to transform one-off programs and partial investment in public health into a comprehensive pattern of delivery, for example in the development of a framework for a national approach to Aboriginal and Torres Strait Islander tobacco control and compiling the evidence on the cost-effectiveness of prevention.

What is the impact?

- Provided training in systems thinking and methods to 250 policy makers, practitioners and researchers
- Built a local workforce of dynamic simulation modellers
- Supported development of a Masters of Public Health core unit in systems thinking at the University of Tasmania
- Informed policy in NSW, ACT, Tasmania and Queensland through dynamic modelling.

A “what-if” tool to better understand complex health problems

Our work in dynamic simulation modelling brings together academics and stakeholders to develop sophisticated computer models that represent the real world. The value comes not only from the findings of the models, but from the trust that the participatory process builds among stakeholders from different disciplines and sectors.

The Prevention Centre built a program of work in dynamic simulation modelling that informed policy and planning to address complex issues in chronic disease in four states and territories.

The models also demonstrated, for the first time in chronic disease prevention in Australia, the benefit of a collaborative process that brings together researchers, policy makers, practitioners and experts.

Dynamic simulation modelling brings together a variety of evidence, such as research, expert knowledge, practice experience and data, to capture the complexity of a problem.

It then uses sophisticated computer simulation technologies to combine those sources of evidence and knowledge to provide policy makers with a powerful “what-if” tool to inform prevention initiatives. It provides a low-cost, low-risk way to trial different interventions or combinations of interventions before they are implemented in the real world.

Our approach to dynamic simulation modelling involves a participatory approach, where policy partners set the questions to be addressed, and stakeholders and academics come together to contribute to the development of the decision-support tool.

They work collaboratively to map the key influences and relationships that affect health behaviours and services. The map is quantified, tested and refined using the best available evidence as well as administrative, survey and burden of disease data to create a transparent model of the problem.

Policy partners welcomed the modelling process for its collaborative approach, transparency, timeliness and relevance. Working together built the capacity of Australian policy makers and academics to use dynamic simulation modelling techniques to address complex public health problems.

Associate Professor Jo-An Atkinson, who leads the simulation work at the Prevention Centre, said this work had set a new benchmark in partnership research.

“Working so closely together has been rewarding on both sides, fostering a spirit of shared responsibility and cooperation, helping to break down barriers, generating trust and credibility, and ultimately resulting in a more useful decision support asset to inform policy and planning,” she said.

She also acknowledged leaders in the field of dynamic simulation modelling, Professor Nate Osgood from Canada and Dr Geoff McDonnell and Mark Heffernan in Australia, who were pivotal to the Prevention Centre’s achievements across projects.

Dr Jo Mitchell, from the NSW Ministry of Health, said dynamic simulation modelling was most useful for policy makers when there was a clear policy window and an opportunity to create change.

The Ministry commissioned the Prevention Centre to develop a dynamic simulation model to determine what interventions would be required to achieve the NSW Premier’s target of a 5% reduction in childhood overweight and obesity by 2025.

“The project allowed us to discuss the things we could do that might make a difference both in terms of improving our current program reach and quality and other new ideas,” Dr Mitchell said.

“Systems dynamic modelling really works when there is a key question you want to answer.”

Achievements

The Prevention Centre's modelling work, as detailed throughout this report, achieved the following:

- Established a participatory modelling approach that places stakeholders at the centre of the process, creating transparency and trust in the model, and strengthening partnerships and cross-sectoral efforts to tackle complex problems
- Developed a simulation model of alcohol use in NSW that explored the impact of a range of potential interventions to address alcohol-related harms, and established the benefits of the participatory approach
- Developed a system dynamics model in partnership with NSW Health that is informing strategic planning to achieve the NSW Premier's Priority of reducing childhood overweight and obesity by 5% within 10 years
- Developed a dynamic simulation model to address diabetes in pregnancy in the ACT through interventions spanning primary prevention to clinical service delivery

- Developed a systems dynamic model of alcohol use in Tasmania that is directly informing Tasmania's Alcohol Action Framework
- Developed a system dynamics simulation model that is helping the Queensland Government to reach its smoking reduction target
- Built a local workforce and literacy in dynamic simulation modelling, including among policy makers working in partner organisations
- Developed an agent-based model in NSW that was the first tool to demonstrate the effects of the dynamic nature of smoking behaviour over time on chronic obstructive pulmonary disease
- Established a national proof-of-concept dynamic simulation model that quantifies the contribution of five key modifiable risk factors to the current and future burden of chronic disease.

ACT model shows power of collaboration across sectors

A modelling project exploring diabetes in pregnancy highlights the importance of bringing together experts across sectors and disciplines to tackle complex problems.

The model is the PhD project of Louise Freebairn, a manager with the Epidemiology Section in the Population Health Division of ACT Health.

Ms Freebairn brought together diabetes in pregnancy experts, including leading academics, policy makers and clinicians from across Australia, to work with international modelling experts. Their insights were combined with research and data to develop a dynamic simulation model of diabetes in pregnancy in the ACT.

ACT Chief Health Officer Dr Paul Kelly, who was closely involved, said a tangible output of the project came from relationships developed during the project. For example, he said the ACT Health Minister had asked him to develop a paper on policy options in diabetes.

Dr Kelly called Professor Chris Nolan, Director of Endocrinology and Diabetes, ACT Health, who he met through Ms Freebairn's project. Together they wrote an initial paper within days and later presented the Minister with a more formal paper.

"That collaboration wouldn't have happened without Louise's project," Dr Kelly said. "We also plan to present the pregnancy in diabetes model to the Minister."

Ms Freebairn said the participatory process enabled stakeholders to trust and understand the model.

"If people went away into a back room and built a model for diabetes in pregnancy without having had the discussions, and the activities that occur through the participatory process, I think it's very unlikely that model would be used for policy dialogue," she said.

Systems thinking a key benefit for Tasmania

One of the biggest benefits of Tasmania's partnership with the Prevention Centre was its support to use systems thinking in prevention, according to Kate Garvey, Manager of Partnership Development at the Tasmanian Department of Health and Human Services (DHHS).

"We had been exploring systems thinking before the Prevention Centre, but it can be a difficult concept," Ms Garvey said. "Our work with the Centre has helped us to realise that potential."

Tasmania's involvement in systems thinking with the Prevention Centre included research projects using systems methods, such as dynamic simulation modelling and Prevention Tracker, and work to build capacity in systems thinking.

Michelle Morgan, from DHHS, worked with the University of Tasmania and Dr Seanna Davidson at the Prevention Centre to develop a framework to help public health practitioners apply systems tools and methods in their everyday work.

The framework is part of a systems-thinking core unit in the Master of Public Health at the University of Tasmania, which was also developed as a collaboration between the university, DHHS and Dr Davidson.

Ms Morgan and Dr Davidson then developed a practice-based e-learning course that will be available to public health practitioners nationally early in 2019.

Ms Garvey said the Prevention Centre had provided the opportunity to co-design research projects and to access experts who helped them to develop adaptive responses to complex issues.

"It has been enormously powerful to be able to draw on a whole range of expertise in an equal way," she said.

Building capacity in using systems

The Prevention Centre trained and supported more than 250 people from every state and territory to use systems thinking in their population health practice.

Manager of Systems Thinking and Capacity Building, Dr Seanna Davidson, said 90% of people who attended the workshops wanted to continue to learn and engage in systems thinking.

Dr Davidson led the development of a diverse program to help public health practitioners to think and work in a systemic way. In return, the Prevention Centre learned from policy makers about how to implement systems thinking in public health.

Achievements

The Prevention Centre's achievements in building capacity in systems thinking include providing:

- Resources for researchers and public health practitioners
- Workshops on systems-thinking skills
- Masterclasses on system dynamic modelling
- A community of practice for public health practitioners
- Tailored support and coaching to policy makers and researchers
- A framework to help public health practitioners apply systems tools and methods.

The researcher's view:
Dr Seanna Davidson

"With systems thinking, policy makers gain new insights and the door of possibility is open again. That is the outcome of any of the work we do together – the light bulb effect is common."

The policy maker's view:
Michelle Hollingworth, Victorian Department of Health and Human Services

"We're dealing with complex problems, whether it's reducing alcohol harms or tackling obesity. There is no magic bullet. Systems thinking is a way to think and act differently. Seanna has helped us to push the group to think about the wider issues – not just service provision."

Communicating the "so-what" of research findings

We are using a range of resources to synthesise evidence for policy makers. Our methods of communicating research findings in an engaging and succinct way are influencing both researchers and policy makers.

The Prevention Centre developed a range of resources for communicating research findings, from 2–4 page Findings Briefs that report the key findings and significance of research findings, to more detailed Evidence Briefs and Rapid Reviews.

All resources use accessible language and highlight why the findings matter for policy makers. They summarise what is known, the knowledge gaps and the practical implications of new research.

Ms Kate Garvey, Manager, Partnership Development at the Tasmanian Department of Health and Human Services (DHHS), said she found the Prevention Centre's Evidence Syntheses particularly useful for ministerial briefings and policy documents.

She had also used the Centre's Findings Briefs as a template for researchers the DHHS funds at the University of Tasmania to report on their work, rather than relying on the dense, academic reports they had received previously.

"People at a practice level may be quite fazed by the level of detail and it doesn't have the "so-what" factor," Ms Garvey said. "I've used the Evidence Briefs to give the researchers an example of how I'd like the reports to be written."

In a survey of policy and practice partners, more than 80% indicated they found the Prevention Centre evidence resources innovative, well presented, informative and understandable.

Most said that they would access the resources in the future and almost all (94%) said they would refer others in their network to the resources.

Understanding more about complex systems thinking

Contributing to the theory and methods of prevention science might sound dry, but this work is essential because it changes the way knowledge is generated and understood.

Without it, we would not be able to recognise progress in prevention or work out why things are not working the way they should. Interventions can be designed in a way that is too small, or even negligible in the scheme of things. Unless people can use theory appropriately, this problem will likely continue.

Work led by Professor Penny Hawe from the University of Sydney involved international collaborations and syntheses of systematic reviews. It demonstrated that by failing to take into account complex systems theory, researchers modelling intervention effects could make misleading conclusions. More specifically, researchers may fail to model how multiple parts of the system adapt, sometimes in ways that can make problems worse.

Using systems thinking, Professor Hawe, Professor Alan Shiell and Dr Shane Kavanagh suggested that one reason that evidence in a particular field may be vexed or contradictory is because the system boundary that has been used to think about and solve the problem differs and assumptions about it are hidden.

Professor Shiell, from La Trobe University, said people could "over-localise" the way they tackle a problem.

"They place way too much importance on bringing about effects that can't be sustained and will likely wash out quickly," he said. "We're working on helping policy makers and practitioners come to grips with ways to amplify change."

This work attracted attention internationally. Professor Hawe was invited to synthesise key learnings about complex interventions for the *Annual Review of Public Health*. The team was also invited to be part of group bringing ideas to a broader readership through *The Lancet*.

Professor Mark Petticrew, from the London School of Hygiene and Tropical Medicine, said: "The legacy of work in complex systems thinking by Penny Hawe, Alan Shiell and colleagues has been a game changer. It's challenged the orthodoxy and inspired revision of the guidelines for complex intervention design and evaluation that are used worldwide."

The research also showed how risk factors cluster, supporting the view that, in adolescent health promotion at least, we should move away from siloed approaches towards multi-factorial interventions that target higher-level determinants of risk trajectories for young people. This potentially changes the health outcomes for which individuals are most susceptible.

Professor Hawe said much of what the team was learning came from studying practitioners and the knowledge that they used to solve practical problems.

"The future of prevention research lies with surfacing and reflecting on this, and looking for patterns," she said.

Targeting risk factors

Risk factors such as smoking, harmful alcohol consumption, poor nutrition and physical inactivity are responsible for most of the burden of chronic disease. Our work seeks to find where in the complex system to intervene to support people to make healthier choices.

A new way of targeting risk factors for chronic disease

The risk factors for chronic disease are determined by many factors that influence people's behaviour. Our research aims to look at the whole system that contributes to people's behaviour to create an environment that supports them to achieve better health decisions.

Nearly all Australian adults have at least one risk factor for chronic disease, and half have two or three risk factors. Among high-risk and vulnerable groups, the number of people with multiple risk factors is even higher.

Even where Australia has done well in reducing chronic disease risk factors, for example control of tobacco and identification and treatment of high blood pressure, there is still room for improvement. For some factors like obesity and physical inactivity, we are yet to turn the tide.

The evidence on what does and doesn't work in preventing chronic disease through modifying risk factors grows daily through Australian and international research. The Prevention Centre's aim is to sift through this mountain of information, identify evidence that is relevant for Australia, and synthesise and communicate it in ways that can inform policy and program decision-making.

In applying a systems-thinking lens to addressing risk factors, we see that individuals' decisions around lifestyle choices are intimately linked to, and determined by, the broader physical and social environment in which they live. This is particularly important when considering how we can more effectively intervene where risks are strongly linked to socioeconomic disadvantage or other vulnerabilities such as smoking, poor nutrition and obesity.

We used systems-thinking tools to explore holistic multi-strategy approaches from the perspective of risk factors (alcohol, tobacco use), specific diseases (diabetes in pregnancy and COPD) and specific populations (people living with mental illness, Aboriginal and Torres Strait Islander communities).

While policies and programs frequently focus on single risk factors at a time, in some of the most at-risk communities and individuals, risk factors tend to travel together. We are building one of the few system models in Australia that will allow testing of the impact of interventions on more than one risk factor at a time.

The biggest challenge in preventing chronic disease is, arguably, how to widely and effectively implement changes that we already know will work. An increasing focus of our work was examining the evidence on how we can do this best, and how what is happening currently compares to that approach. For example, we funded work at a national and state level in relation to policy action around obesity and workplace interventions. Another project examined how state policies aimed at reducing childhood obesity were implemented and translated at a local level.

We see our key role as continuously challenging orthodoxy around how we should address risk factors for chronic disease. We promote the principle of continuous improvement, not only in the way we conduct prevention, but in the evidence that informs policy and practice.

Looking beyond the individual

Our systems approach to the risk factors for chronic disease has shown:

- Policy must recognise that the determinants of chronic disease go beyond individuals and individual risk factors
- It is necessary to address all the inter-related elements in the system that contribute to chronic disease
- Equity is essential, recognising that the risk factors for chronic disease are more common in socioeconomically disadvantaged populations
- There is a need for cost-effective regulatory policy actions to improve the environment and help people make healthier lifestyle choices.

Importance of a healthy weight before pregnancy

Dynamic simulation modelling was used to explore the growing problem of diabetes in pregnancy in the ACT, caused in part by an increase in overweight and obesity among women who are having babies.

If untreated, diabetes in pregnancy – including gestational diabetes and type 1 and type 2 diabetes – increases the risk of poor pregnancy outcomes. It is associated with a higher risk of permanent diabetes in mothers, and obesity and diabetes in children.

A PhD project led by Ms Louise Freebairn, a manager with the Epidemiology Section in the population health division of ACT Health, brought together clinicians, academics and policy makers to develop a dynamic simulation model of diabetes in pregnancy in the ACT.

Early findings from the model emphasise the benefits for women and their children of preventing diabetes in pregnancy, including the importance of a healthy weight before and during pregnancy.

- Women with obesity experience a sharper decline in insulin sensitivity compared with normal weight women. Low insulin-sensitivity, or insulin resistance, is associated with type 2 diabetes
- It is possible to significantly reduce the number of women with diabetes in pregnancy by focusing on risk factors like overweight, diet and physical activity
- These lifestyle interventions should target women in early adulthood, before pregnancy, to reduce the incidence of diabetes in pregnancy.

"You can have an impact on mother and baby but also whole families to improve their diet and their level of physical activity and potentially reduce overweight and obesity in future generations," Ms Freebairn said.

Modelling how cross-sectoral measures can cut obesity

Obesity

The Prevention Centre has used systems methods such as dynamic simulation modelling to examine the complex causes of obesity and to forecast the impacts of a range of policy options.

The NSW Ministry of Health commissioned the Prevention Centre to develop a system dynamics model to determine what suite of interventions would be required to achieve the NSW Premier's target of reducing childhood overweight and obesity by 5% by 2025.

The project showed what cross-sectoral action is needed to meet the target.

Other interventions, such as improving the built environment and increasing children's sport, would need to be added to enhanced NSW Health-led measures to achieve the target.

Working with the NSW Ministry of Health and the NSW Department of Premier and Cabinet, we brought together modelling experts with academics, policy experts and practitioners in a series of workshops to map the complex interaction of factors leading to childhood overweight and obesity in NSW.

The initial model framework was then quantified, tested and validated using research evidence and datasets to create a computer model that forecast the likely effect of various policies and programs once implemented in the real world.

The model found that "business as usual", that is, continuing NSW Health population health interventions to address childhood overweight and obesity at current or enhanced levels, would achieve a substantial contribution towards the Premier's target – but would not meet it.

However, it demonstrated that it was theoretically possible to meet the target by implementing a suite of policies and programs that combined enhanced existing NSW Health programs with measures by other sectors including urban planning and education.

Policy makers are now using the model to explore policy options for reducing childhood overweight and obesity in NSW.

Interventions included:

- Improving the built environment, such as making communities more walkable (green space, lighting, signage and increased safety)
- Increasing opportunities for children to take part in sport and recreation as well as increasing active transport infrastructure (bike paths and improved pavements)
- Implementing fiscal policies to discourage consumption of unhealthy beverages and to make healthy food more affordable, (subsidies for healthy food)
- Increasing the availability of healthy food.

Landmark project benchmarks obesity prevention policies across Australia

Australia is a world leader in the implementation of some policies to address unhealthy diets, including aspects of food labelling, food prices (with no GST on basic foods) and regular monitoring of population body weight, according to a project led by Associate Professor Gary Sacks of Deakin University.

However, we are lagging behind other countries significantly in other critical areas, including the lack of an overall national strategy for improving population nutrition, efforts to restrict marketing of unhealthy food to children, and taxes to increase the price of unhealthy foods.

This project aimed to benchmark the extent to which Australian governments (state, territory and federal) were implementing recommended policies to improve population nutrition, with reference to international best practice.

The project developed the Food Policy Index – 42 key policy actions related to food environments that have been shown to have an important impact on population diets. The research team then worked closely with policy makers in each jurisdiction to document current policy actions in these 42 areas up to 30 June 2016.

More than 100 experts assessed the extent of policy implementation in each policy area. The research team produced a scorecard and priority actions for each government.

This landmark project provided a roadmap for jurisdictions to meet international best practice benchmarks for policies to improve population nutrition.

It found that, while many of the states and territories had policies among global best practice, there was huge variation in the implementation of nutrition policies across federal and state governments, and this was diminishing Australia's efforts to address obesity.

"Often good policies exist, but they are not being implemented in a coordinated way," said project lead, Associate Professor Sacks.

The project's key recommendations for states and territories are:

- To improve the healthiness of foods and reduce the promotion of unhealthy foods in government-controlled settings
- Incorporate population nutrition considerations and healthy food environments into planning provision
- To implement policies to increase awareness and compliance with healthy food provision policies in schools.

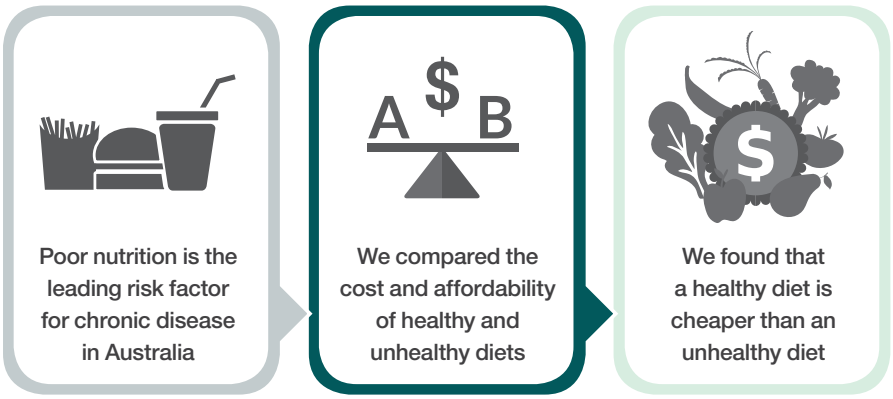
What is the impact?

- Scorecards and priority recommendations were released for each jurisdiction in February 2017. The launch achieved widespread media attention and there were formal responses to the report by the Federal and Shadow Health Ministers, the Australian Food and Grocery Council and the Australian Medical Association
- Some policy makers involved in the study reported that the findings about their government's performance in population nutrition had informed and confirmed priorities and focused political attention on recommended obesity prevention policies
- The project laid the foundation for benchmarking in three other sectors: food and beverages; supermarkets and quick service restaurants
- This project was the first internationally to benchmark food policies at a state and territory level. Canadian researchers have since adopted this approach to benchmark provincial efforts.

Measuring the real cost of healthy food to answer key policy questions

Nutrition

There is already plenty of evidence about what needs to be done to improve poor nutrition. Our work focuses on driving research to underpin policies that will help make the healthiest food choice easier.



There is a public perception that healthy foods are more expensive, but the price of (recommended) healthy diets and unhealthy (current) diets had never been compared in the real world.

Professor Amanda Lee and her team used dietary data reported in the 2011–13 Australian Health Survey and local store food prices to cost people's diets in Brisbane, Canberra and Sydney, and compared this to what they should be eating for health, based on the NHMRC Australian Dietary Guidelines.

The project found current (unhealthy) diets, including alcoholic drinks, cost more than healthy diets in households in all socioeconomic areas surveyed in Australia. Healthy diets would be around 12–15% cheaper than current (unhealthy) diets for a family of two adults and two children per fortnight.

It found households in all socioeconomic areas spend more on unhealthy food and drink choices (around 58% of the food budget) than on healthy food and drinks.

Healthy food already costs low-income households up to around one-third (31%) of their disposable income.

Professor Lee said there was a community perception that healthy food costs more than unhealthy food.

"The belief is that the price is a key determinant to what people choose, but what this research shows is that other factors, such as convenience, availability or advertising of foods are as important factors as price," she said.

As a result, the team developed Australia's first agreed national standardised tool to compare the relative cost and affordability of healthy and unhealthy diets – the Healthy Diets ASAP (Australian Standardised Affordability and Price) method.

This tool can answer key policy questions around the difference in price and affordability of healthy and unhealthy diets, and how these would change with different policies. These findings influenced food and fiscal policy and informed research methods.

What is the impact?

- The findings were used to inform the Australian Government's decision not to expand the GST base to include basic healthy food
- State and territory jurisdictions used the findings to support the case for chronic disease prevention policy and to inform policy negotiations
- The method developed in the project informed similar work in New Zealand as well as globally for the International Network for Food and Obesity/NCD Research, Monitoring and Action Support (INFORMAS)
- The method is being used in projects working towards the United Nations Global Sustainability Goals relevant to food security
- The Healthy Diets ASAP tool informed the development of a similar tool for Aboriginal and Torres Strait Islander communities.

The researcher's view:
Professor Amanda Lee

"We now have a robust, acceptable and standardised way of measuring food costs in Australia. The new standardised methods will help to answer key policy questions on the difference in price and affordability of healthy and unhealthy diets."

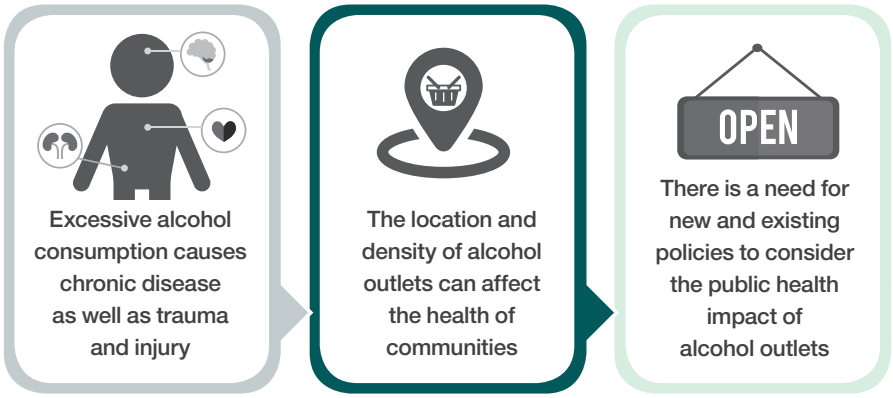
The policy maker's view:
Emily Harper, ACT Health

"This local information is a powerful tool for prosecuting arguments about the importance of prevention and in tracking our progress. We have used Amanda's findings internally and they have been a useful basis for negotiations with government."

Taking health into account in applications for alcohol outlets

Alcohol

Our research into harmful alcohol consumption includes investigating the health consequences of alcohol availability, the role of health considerations in disputed alcohol outlet applications, and modelling alcohol-harm interventions in NSW and Tasmania.



A Prevention Centre project that highlighted the need to consider public health impact in development applications for alcohol outlets helped to argue the case for a change in NSW planning legislation.

The project was led by Jan Shanthosh from The George Institute for Global Health as part of her PhD project on the role of public health law in preventing chronic disease.

Her project follows emerging evidence that increasing the density of alcohol outlets exacerbates domestic violence and is associated with violence in general, particularly in socioeconomically disadvantaged areas compared to other areas.

In a review of disputed development applications for alcohol outlets, Ms Shanthosh found that in more than three-quarters of court cases where local and state governments opposed the applications, judicial officers ruled in favour of the alcohol industry because the legislation did not explicitly allow consideration of the public health impacts of planning decisions.

That situation is changing in NSW. In November 2017, the state parliament amended the Environmental Planning and Assessment Act to include two health considerations: protecting the health and safety of building occupants, and promoting good design and amenity of the built environment.

Ms Shanthosh and Alexandra Jones, from The George Institute, made a submission to the NSW Department of Planning and Environment review of the NSW planning system.

The amendments were moving in the right direction, Ms Shanthosh said, but more changes were needed to support local government.

For example, her research examined the case of Shoalhaven City Council on the NSW south coast. The council rejected an application for a huge liquor outlet in Nowra based on community and police evidence around high levels of domestic violence, poor school attendance and alcohol-related crime. The court overturned the decision and the proposal went ahead.

"Providing more legislative support for public health imperatives would mean local governments would be empowered to build communities that were healthy, equitable and prosperous, without their decisions being successfully challenged in the courts."

Her PhD project also evaluated the impact of public health law through systematic reviews into the effectiveness of Indigenous community-led alcohol restrictions, and qualitative methods to gauge the effectiveness of public health law interventions.

What we found

- Public health impact has little or no influence when liquor licences and development applications for new alcohol outlets are considered in court in NSW
- To reduce the public health impacts of alcohol outlets in local communities, planning law and policy need to consider health and social impacts, as is already the case in the ACT, South Australia and Queensland
- Community-led measures to restrict alcohol in Aboriginal communities are generally effective in improving health and social outcomes.

Alcohol

Using simulation models to unpick alcohol harms

The Prevention Centre developed dynamic simulation models of alcohol use in NSW and Tasmania to forecast the effectiveness of a variety of approaches to prevent alcohol-related harm.

Both models found that far greater impact could be achieved with a broad policy response rather than a health sector response alone.

The Tasmanian model was built with the Tasmanian Department of Health and Human Services (DHHS) and informed the state's Alcohol Action Framework.

The project enabled the DHHS to build a relationship with key stakeholders, such as the Liquor and Gaming Licensing Branch. In an indication of the impact of the project, the model was presented at the annual national meeting of the Gaming and Liquor Commissioners – an invitation that came as a result of understanding and trust built during the process.

Why alcohol availability matters for health

Living close to a bottle shop, pub or club has a greater impact on health for those in disadvantaged areas compared to people in well-off areas, a study that was part of the Prevention Centre's liveability study found.

The study, published in 2015, examined the self-rated health of more than 3000 people in metropolitan Melbourne and mapped the location and density of alcohol outlets in their areas.

Study lead Associate Professor Hannah Badland, from RMIT, said the study found that the location and density of alcohol outlets had no impact on the long-term health of people in better-off communities, but it was a different story for disadvantaged communities.

"People in disadvantaged areas were more likely to rate their long-term health as poor if there was an on-licence alcohol outlet, such as a pub or restaurant, within 400 metres, or a bottle shop within 800 metres," she said.

The study pointed to a need to further develop state policies to regulate the location of alcohol outlets to create safer and healthier communities, especially for disadvantaged communities.

What we found

- People from disadvantaged areas who live close to alcohol outlets rate their health as poorer than people who live in well-off areas who have the same access
- There were few state government policies about where to locate alcohol outlets and none took the demographics of the region into account.

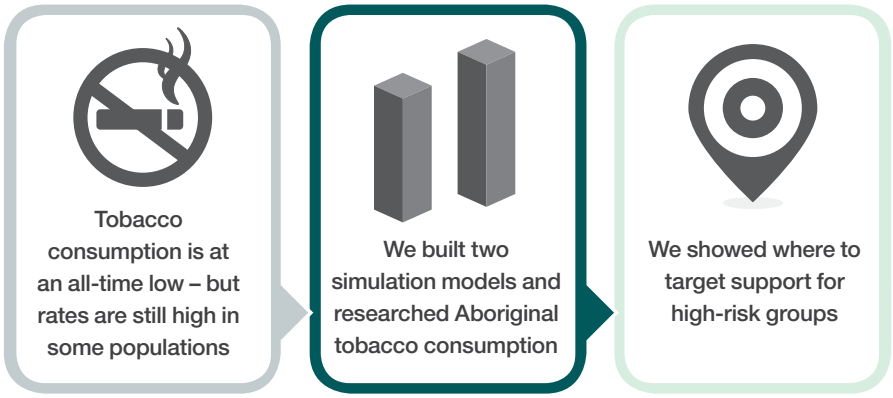
The researcher's view:
Associate Professor Hannah Badland

"People in disadvantaged areas were more likely to rate their long-term health as poor if there was an on-licence alcohol outlet, such as a pub or restaurant, within 400 metres, or a bottle shop within 800 metres."

Learning from the positive stories of Aboriginal teenagers who don't smoke

Tobacco

Our work on reducing tobacco use includes modelling smoking behaviour in Queensland and NSW, reviewing the literature on Aboriginal tobacco control and conducting qualitative work with young Aboriginal smokers.



Smoking among Aboriginal people is at an all-time low. However, there has been a jump in the proportion of young smokers who take up the habit in early adulthood, a Prevention Centre PhD project revealed, opening the door to targeted prevention measures.

Prevention Centre PhD candidate Christina Heris studied the smoking experiences of young Aboriginal people to find the positive influences needed to prevent others from starting to smoke. She found a need to support family and community connections to protect against the uptake of smoking.

Her multi-methods study looked at data from the SEARCH (the Study of Environment on Aboriginal Resilience and Child Health) partnership study, the Longitudinal Study of Indigenous Children and the Australian Bureau of Statistics. The project also included qualitative research to find the positive story behind the data, as well as supporting a community-led, targeted communications campaign for Aboriginal adolescents.

She found that smoking uptake by teenagers is dwindling, but of those young people who do start to smoke, more are taking it up in their twenties.

"There are kids who were hard core non-smoking advocates in their school years who then might have started smoking in their twenties. We need to find out what's leading to that change in attitudes. We know that there are different influences at different ages and that's something that we're likely to see in non-Aboriginal communities as well," Ms Heris said.

She found that teenage non-smokers were more likely than smokers to not drink alcohol or be sexually active; to have strong social and emotional wellbeing and good relationships with family, school and community; stable housing; and no interactions with the justice system.

"People do know smoking is harmful, that's not why they are smoking. It's a symptom of bigger things. The things that were associated with a non-smoker are the things that make for a healthier young person overall.

"This research suggests that if you address the social determinants, other health benefits will come out of it," she said.

Evidence for a comprehensive approach to Aboriginal tobacco control

A Prevention Centre project led by Professor Sandra Eades of Baker Heart and Diabetes Institute has examined what is known about ways to reduce tobacco consumption among Aboriginal people.

Her research found there is limited Aboriginal-specific evidence for most tobacco interventions. The project made the case for a comprehensive approach to guide Aboriginal tobacco control, including strategies developed collaboratively with Indigenous leaders, Aboriginal Community Controlled Health Services and services at local, state and national levels.

Modelling for a smoke-free Queensland

A dynamic simulation model commissioned by the Queensland Government is being used to inform the state's tobacco reform with the aim of reducing the smoking rate in Queensland to 8% by 2026.

The model was developed as a partnership between the Prevention Centre, the Sax Institute's Decision Analytics team and Queensland Department of Health.

It showed that population-wide tobacco control strategies such as mass media campaigns, smoke-free legislation and tobacco excise increases are working across all population groups.

However, high-risk groups need special attention to ensure the benefits of interventions are realised more rapidly.

Rebecca Whitehead, Senior Health Promotion Officer at Queensland Health, said the state was using the model to examine the impact of specific smoking reduction interventions and explore the benefits of introducing combinations of interventions.

"The model is proving to be a useful decision-support tool. It is providing robust, substantive information that we can use to guide and select the most effective approach for smoking reduction," Ms Whitehead said.

"Even though quit smoking advertising campaigns or smoking bans are working for everybody, some groups have higher smoking rates and less agency to quit, so we need to be much more targeted in implementation."

What we found

- Population-wide tobacco control strategies in Queensland are working
- High-risk populations need to be targeted to improve quit smoking action
- A combination of strategies will be most effective in helping people to quit.

Quit attempts reduce future burden of COPD

A dynamic simulation model of COPD in NSW has showed that encouraging quit attempts among young smokers and those from lower socioeconomic backgrounds will have the greatest impact on the overall COPD burden, and could delay the onset and severity of the disease among these people.

The model also showed that any intervention that supports longer and more frequent quit attempts will have much greater benefits than has been shown in the literature previously.

Modeller Dr Ante Prodan said the contributions of smoking to COPD are cumulative, meaning the probability of COPD increases with the amount of tobacco smoked over a lifetime.

"So, helping people to sustain their quit attempt for just a few extra days, or encouraging them to try more often, could significantly impact the burden of COPD at a population level over time," said Dr Prodan.

"We know that some smokers are becoming less sensitive to price increases, so it will be necessary to develop targeted interventions for different sub-populations of smokers to prevent COPD in future."

The agent-based model incorporated multiple sources of data, including NSW Health and ABS data and recent research on quitting by Professor Ron Borland of the University of Melbourne. The findings were tested against self-reported data collected by the Sax Institute's 45 and Up Study.

Unlike previous studies, the model simulated in continuous time how COPD risk is affected by how much people smoke and the length and frequency of their quit attempts. It calculated smoking harms daily, meaning it could predict in more detail the long-term benefits of cutting down or quitting for just a few days.

What we found

- Identifying and helping smokers who are likely to quit for longer has the potential to substantially reduce the burden of COPD in NSW
- The incidence of COPD will increase as the population ages, but this could be offset by further reductions in smoking prevalence in the population and smoking frequency in individuals
- Cutting down or quitting, even for a relatively short time but frequently, has a significant effect on an individual's COPD risk and progression over time
- Any intervention that increases frequency and duration of smokers' quit attempts has the potential to lead to significant reductions in the prevalence of COPD.

How we live

We are working to understand how the environments in which we live contribute to health outcomes. We are looking at the design of urban environments, the systems that impact on whether or not people eat healthily, and the role of food insecurity in Aboriginal overweight and obesity.

Creating healthy liveable neighbourhoods

This project is providing policy makers and researchers with evidence and tools to inform the development of planning policies and interventions that will reduce the risk factors that affect lifestyle choices and promote health and wellbeing.

A team led by Professor Billie Giles-Corti from RMIT (formerly from the University of Melbourne) developed a set of indicators that measure key factors, such as the impact of open space, that make our cities both healthy and liveable.

The Australian National Liveability Study comprised researchers from universities across Australia. It began by looking at Victoria, NSW, ACT, WA and Queensland to identify relevant spatially-measurable urban planning policies for five aspects of liveability:

- Access to alcohol
- Healthy food
- Transport
- Public open space
- Walkability.

Spatially-measurable policies incorporate information on the natural or constructed features within an area, such as streets, parks, shops and services.

Using geographic information system (GIS) software, the team was able to link these policy measures with residents' health behaviours and outcomes. Those related to health were developed as national indicators and were mapped across cities.

Combining this information allowed the team to produce valuable new research evidence which enabled policy makers and researchers to better understand the urban planning factors that affect health and wellbeing.

This was the first study in the world to explore associations between access to alcohol and self-rated health, and the first to examine and demonstrate associations between the frequency of public transport services and the likelihood that residents would choose walking as a form of transport.

Professor Giles-Corti said: "Understanding which urban planning policies and interventions reduce the risk factors that affect lifestyle choices and promote health and wellbeing provides a valuable policy tool and the objective measurement mapping has generally been welcomed by policy makers."

The second phase of the Australian National Liveability Study focused on scaling up the findings to all state and territory capital cities, and mapping and disseminating the indicators. The team also worked with The Clean Air and Landscape Hub of the National Environment Science Program, which enabled them to undertake an analysis and mapping of policies designed to create liveable and walkable cities.

Findings from this research were first shared in the Creating Liveable Cities in Australia report in 2017 and launched at the national Healthy Liveable Cities Conference held in October, which was sponsored by the Prevention Centre.

The results are now being disseminated via city-specific scorecards, as well as an online portal, the Urban Observatory – a national database that enables policy makers and researchers to see

at a glance how cities, suburbs and neighbourhoods measure up against the national liveability indicators.

Lead of the Urban Observatory project, Dr Jonathan Arundel of RMIT, said it allowed users to access the indicators across each of the liveability domains, visualise the indicators within a specific area such as where people live, and compare liveability indicators across different areas within major capital cities.

"The Urban Observatory's unique value is that it is simple and powerful enough to meet the needs of diverse group including policy makers, planners and the general public," he said.

The researcher's view:
Professor
Billie Giles-Corti

"Understanding which urban planning policies and interventions reduce the risk factors that affect lifestyle choices and promote health and wellbeing provides a valuable policy tool and the objective measurement mapping has generally been welcomed by policy makers."

What is the impact?

- Liveability indicators developed by the liveability research team, led by Professor Billie Giles-Corti, are being used to inform policy at national, state and local level
- The transport liveability indicator was included in the National Cities Performance Framework, an Australian Government initiative launched in December 2017 that provides a snapshot of the productivity and progress of Australia's largest 21 cities
- A number of councils in Victoria are using the Melbourne liveability work to help guide planning decisions, including Cardinia Shire Council, Moreland City Council, the 10 Interface Councils, LeadWest (representing all six councils in Melbourne's west) and the Mornington Peninsula Shire
- The liveability indicators are being used by the Australian Institute of Landscape Architects, the Australian Institute of Architects and the Planning Institute Australia in their policy submissions ahead of the Victorian state election
- The Queensland State Government is discussing how to apply liveability indicators to measure liveability in the south east of the state.

Shifting the paradigm on healthy and equitable eating: the HE² project

Typically, the lower people's socioeconomic status, the more likely they are to eat a poor diet and be at greater risk of chronic disease.

We know that what people eat is influenced by the availability, affordability, physical accessibility and acceptability of different foods. Their dietary behaviours are also a response to the daily living conditions in which they are born, live, learn, work and age – the social determinants of healthy eating.

The Prevention Centre conducted the first study in Australia to examine inequities in diet from a systems perspective – that is, how the entire system influences what people eat. The research was aimed at informing policy development and implementation across a range of policy areas that affect diet, including health, education, social and urban planning.

The research team, led by Professor Sharon Friel of ANU, undertook collaborative conceptual modelling workshops with an expert group of representatives from government, non-government and health organisations and academia. From this, they were able to develop a causal loop diagram illustrating the interconnected drivers of inequities in healthy eating.

Based on the diagram, the researchers then developed a systems-based policy framework to suggest plausible policy actions that could be taken to improve healthy and equitable eating across seven policy domains. The Framework was refined with input from policy partners in the ACT and NSW government to ensure "real world" applicability and feasibility.

What we found

The research identified seven policy sub-systems that influence people's healthy food consumption and its social distribution. Inequities in healthy eating are influenced by all of these, and they all influence each other.

7. Food system and environment

Policies for coherent, nutrition-focused equity goals across sectors to improve levels of availability accessibility, affordability and acceptability of healthy foods.

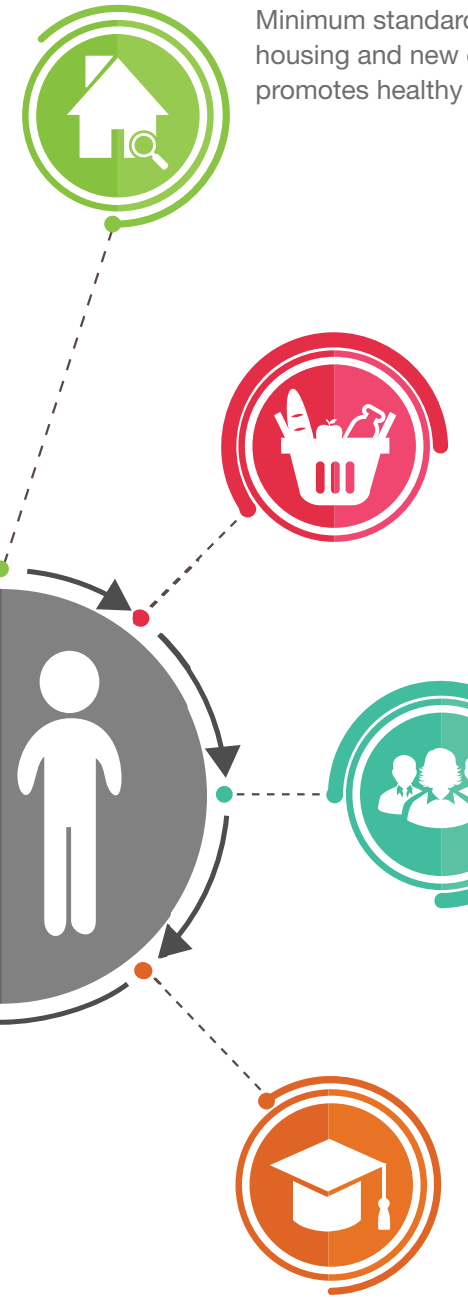
6. Planning

Planning policies to support the availability and accessibility of healthy food and limit availability of unhealthy food in communities.

5. Transport

Transport policies to support accessibility needs of all citizens; subsidise travel fares for those on low incomes or with disabilities; freight subsidies for fresh produce.

The HE² Framework



1. Housing

Minimum standards and pricing structures for public housing and new developments to ensure housing that promotes healthy food environments is affordable.

2. Social protection

Policies to improve the conditions that perpetuate poor nutrition among disadvantaged groups, ensuring that people can afford to buy healthy food and that guidelines exist that promote healthy food provision within the emergency food sector.

3. Employment

Policies to ensure access to employment/income, with comprehensive and flexible workplace policies so people are supported to make healthy food choices at work and outside.

4. Education

Nutrition literacy for children and families; resources to equip children to stay in the education system as long as possible.

What is the impact?

- The project showed how action is needed across a range of policy areas, including health, housing, education, social and urban planning, to address inequities in healthy eating. Currently, there is little government attention to this issue outside of the health sector
- The project recommended policies that ensure minimum standards in the housing sector to ensure that new developments promote healthy eating (for example, by having enough storage space); that the education sector addresses nutrition literacy; transport supports accessibility for everyone; and planning policies support the availability of healthy food and reduce the availability of unhealthy food
- It also provided recommendations aimed at ensuring social protection services, employment and the food system all consider nutrition-focused equity
- This Framework provides governments with plausible intersectoral policy actions that have potential to improve diet equitably.

The researcher's view:
Professor Sharon Friel

"There is already a lot of evidence about the food system and policy actions that are required to improve healthy eating. What we have done is shifted the paradigm and shown there are actions that can be taken across a range of other policy domains that are essential if we want to reduce inequities in food and nutrition."

Working with urban Aboriginal communities to tackle food insecurity

A Prevention Centre project is the first in Australia to capture local community voices in finding solutions to food insecurity in urban Aboriginal communities.

In-depth interviews provided a number of simple solutions to food insecurity – a problem that faces one in five urban Aboriginal households, compared to just under 4% of the general population, according to the Australian Bureau of Statistics.

Food insecurity is when families have run out of food and have not been able to afford to buy food on occasions during the past 12 months. Mild and moderate food insecurity has been linked to poor nutrition and higher rates of obesity.

The project is working towards developing a food security framework for urban Aboriginal communities, ahead of embarking on a community-led plan to address the problem in 2020.

The research is embedded in the Study of Environment on Aboriginal Resilience and Child Health (SEARCH), which is a partnership between the Sax Institute, Aboriginal Health and Medical Research Council, leading researchers and Aboriginal Community Controlled Health Services.

The study team spoke to Aboriginal families, Elders, Aboriginal health workers, council, charities, food suppliers and local government in both the regional town of Wagga Wagga, NSW and in Campbelltown in western Sydney, to identify the many interconnected reasons that contribute to families' inability to ensure a stable supply of fresh, healthy food.

Project lead Associate Professor Sumithra Muthayya, the Study Director of SEARCH, said physical activity and healthy eating programs alone would not fix the problem of food insecurity in urban Aboriginal communities.

"We can't address food insecurity without fixing the system – things like whether people can afford to buy good food or have a car to fetch it. In this project, we wanted to talk to families and find out for ourselves what it is they are facing from the people experiencing it," she said.

The research revealed that many Aboriginal families are trapped in a vicious cycle of financial disadvantage, relying on pay day loans to purchase food as families depended a lot on welfare payments that were simply not enough to go around. Unlike Elders, they often do not have the skills to manage finances, budget, or cook cheap, healthy meals to ensure a continuous supply.

Many were providing food for extended family and other community members, sometimes for lengthy periods of time, or the food budget was being used on competing interests such as cigarettes or alcohol.

Another problem was a lack of accessible fresh food. Supermarkets in local suburbs did not stock healthy choices or those choices were more expensive, and some families were unable to easily travel to large supermarkets by public transport.

As a result, households were likely to rely on cheap food such as large meat packs to feed the family, or cheap fast food, which was heavily advertised and readily available.

"Families said that teenagers are ordering $2 of hot chips, with free delivery to their house. Many children don't know what whole vegetables look like these days, they just have frozen vegetables at home," said Project Officer Simone Sherriff, a Wotjobaluk woman who grew up in Wagga Wagga.

"For many families, it's a matter of survival. It's more important to make sure the kids are fed rather than thinking about whether the food is healthy."

The team found there was a reticence among many Aboriginal families to access services outside the community. But they did nominate a number of measures to improve food security in their communities.

These included introducing a pop-up grocer to sell healthy food at a reasonable price and a shuttle bus service to take people to the supermarket; providing support with education around budgeting and meal planning; and providing subsidised healthy food boxes.

Driving action

Our work supports decision makers to design and implement policies and programs to prevent chronic disease. We are researching best practice implementation and provide expertise to policy makers on how to evaluate and scale up effective programs.

The profound effect of making health promotion visible

A project is looking behind the scenes to capture the value of a NSW Health e-monitoring system tracking the largest scale up of obesity prevention programs in Australia.

An electronic monitoring system used by NSW Health to track the implementation of statewide prevention programs made health promotion visible and accountable on the same terms as clinical services.

The Population Health Information Management System (PHIMS) is an embedded electronic monitoring system specially designed to assist program delivery and track the achievement of targeted changes in NSW. PHIMS is unique because elsewhere in the world large-scale e-monitoring systems for health promotion program delivery have not been sustained.

The Prevention Centre studied how the use of PHIMS had impacted the delivery of two effective obesity prevention programs in primary schools and childcare centres in NSW. The partnership research team – made up of NSW Health and University of Sydney researchers – set out to understand what the field could learn from NSW Health's experience in implementation.

Project lead Professor Penny Hawe said the team used ethnographic methods – qualitative research where researchers interact with the study's participants in their real-life environment – to look at how PHIMS is used in everyday practice. The team also conducted interviews with key policy makers and managers across NSW.

"There are routine reports on the number of schools and centres reached and the number of key performance indicators (KPIs) achieved," she said. "But this was a chance to look behind the scenes and see how change is being brought about, and to catch the wider impact."

They found that making the status of program delivery visible via instantly accessible, dashboard-style PHIMS data had a profound impact on the status and legitimacy of the resources going into disease prevention and health promotion.

The recording system's strength appeared to be its central and local processes of management and communication that have allowed PHIMS to continually change.

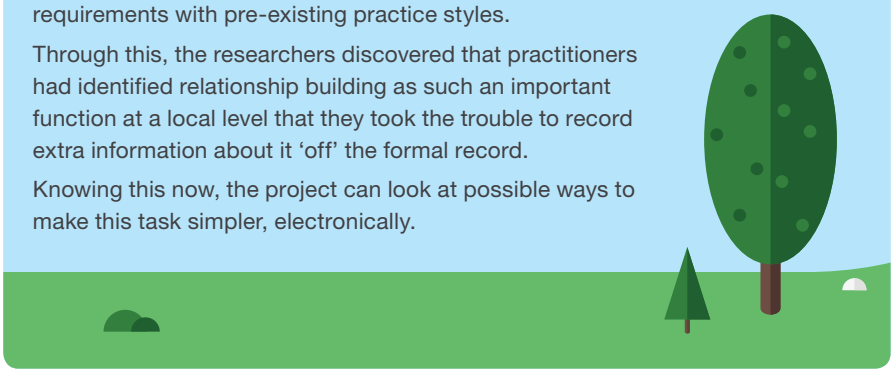
Every Local Health District took part in the research, which means the insights from a year's observation can now be

Relationships are crucial

Systems thinking guides the team to look at the functions of actions in the local practice system and the fit of the KPI requirements with pre-existing practice styles.

Through this, the researchers discovered that practitioners had identified relationship building as such an important function at a local level that they took the trouble to record extra information about it 'off' the formal record.

Knowing this now, the project can look at possible ways to make this task simpler, electronically.



used for a whole-system dialogue about possible further improvement and adjustments. This will further enable accountability to centrally set goals alongside the ongoing meeting of local-level needs.

Around 75% of primary schools and childcare centres across the state are adopting these programs to a high standard. For example, schools and childcare centres are restricting screen time, getting kids physically active and promoting healthy eating practices.

Professor Hawe said this success was not a consequence of being strict about implementation in a cookie-cutter type way.

“Rather, the implementation strategy is what is called ‘tight-loose-tight’,” she said. “This means being tight about the purpose/goal, tight about the specific target to be reached, but loose about how to get there.”

The policy maker’s view:
Dr Jo Mitchell
“The research has prompted us to think differently about what we thought was a pragmatic IT solution to support state-wide implementation and reporting. It’s generated new ideas and more pride in the work that we do.”

The researcher’s view:
Dr Katie Conte
“Most people study implementation from a ‘top-down’ perspective. We are looking at the space between top down and bottom up – the zone of mutual adaptation. This is where much knowledge from practice comes from.”

Implementing healthy workplace programs

A Prevention Centre project provided valuable insights into the way state-level workplace health programs were developed as part of the Healthy Workers Initiative (HWI) across Australia.

The HWI, which supported healthy lifestyle programs in workplaces across Australia, was introduced as part of the National Partnership Agreement on Preventive Health (NPAPH).

The program’s funding was suddenly withdrawn when the NPAPH was cancelled in 2014, but Prevention Centre researchers found there were important lessons from the experiences of different states and territories in trying to translate a high level, federally-funded initiative into state-wide programs.

Our research project involved interviews with HWI coordinators and managers across seven jurisdictions, to compare their experiences at a state or territory program development level.

The analysis identified four ways in which jurisdictions sought to achieve their goals in implementing the program: taking an embedded approach to workplace health promotion; ensuring relevance to businesses; engaging in partnerships with agencies responsible for implementation; and cultivating evolution of the workplace health program.

Project lead Dr Anne Grunseit, from the University of Sydney, said the project showed that in program development it was really worthwhile to document the wider contextual factors which helped or hindered programs to create sustained change.

Building capacity in evaluating complex programs

The Rapid Response Evaluation Capacity (RREC) was set up to provide expertise in complex program evaluation and to identify opportunities to embed research and evaluation in the rollout of policies and programs by funders and other agencies.

RREC lead Professor Adrian Bauman and his team at the University of Sydney provided a new model for conducting and supporting evaluations of policies and preventive health interventions in jurisdictions nationally.

Professor Bauman said developing methods for evaluating preventive programs was important because there was limited evidence on methods for evaluating how these programs worked, why they worked and which parts worked.

“This meant the Rapid Response Evaluation Capacity was an experimental part of the Prevention Centre that was a necessary part in its development and became more useful and better understood as we got better known,” Professor Bauman said.

Initially, the plan was to have an evaluation function that could respond rapidly to policy partners’ requests for help with program evaluations, because capacity and expertise at that time was limited in many jurisdictions.

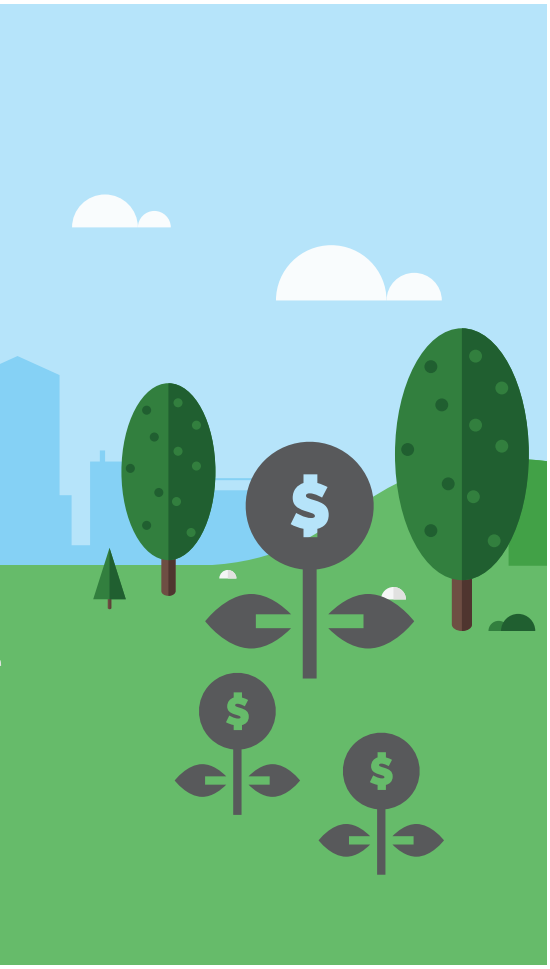
There was mixed success, Professor Bauman said. While the rapid response service was not used as much as expected, when it was used, it helped jurisdictions to assess their prevention programs more effectively and deeply.

“RREC has built national capacity in understanding complex program evaluation,” he said.

An example of the team’s work is its collaboration with the NSW Ministry of Health to evaluate the NSW Aboriginal Knockout Health Challenge, a community-led weight loss and healthy lifestyle program for Aboriginal communities across NSW.

Dr Andrew Milat, Director of Evidence and Evaluation at the NSW Ministry of Health, said the Prevention Centre team conducted extra analysis of the data, including comparing results across the Challenge, which helped in planning and targeting the program.

He said the Prevention Centre analysis clarified questions about the effectiveness of the Challenge, helping to show that it was an effective strategy that continued to attract an increasing number of participants and to achieve consistent levels of weight loss and significant changes in fruit and vegetable intake.



The policy maker's view:
Dr Andrew Milat

"Having the Prevention Centre team working with us, doing the extra analysis has allowed us to learn more about the Challenge. The Knockout Health Challenge advisory committee has found it invaluable."

Achievements in evaluation

Conducted and supported evaluations for:

- NSW Get Healthy at Work initiative
- ACT Healthy Weight Initiative (in collaboration with ACT Health)
- The Aboriginal Knockout Challenge (in collaboration with NSW Ministry of Health)
- Healthy Weight for Life weight loss maintenance program (in collaboration with HCF).

Built capacity in evaluation through:

- Establishing and supporting a national network of public health managers involved in complex program evaluation
- Developing an online course in complex program evaluation
- Developing guidelines for NSW Health on how to commission economic evaluations.

Developed innovative evaluation methodologies:

- A tool to measure the functioning and change in partnerships
- Systematic review of models for scaling up health interventions
- Systematic review of examples of complex program evaluations
- A protocol for achieving best practice in planning, implementing and evaluating mass media campaigns.

Tool measures the benefits of working in partnership

A new tool we developed in our work with ACT Health was used to assess partnership within the Prevention Centre as well as across preventive health programs internationally, including in the UK and Canada.

The Rapid Response Evaluation Capacity (RREC) developed the tool as part of its collaboration with ACT Health to evaluate its Healthy Weight Initiative (HWI).

The tool is a novel way to measure the success of working in partnership and fills a gap in partnership evaluation. Previously, there was no way to measure the benefits of partnerships, such as increased efficiencies and shared knowledge, or the costs, such as time spent maintaining relationships and translating findings.

RREC lead Professor Adrian Bauman said it was important to evaluate partnerships because they were commonly part of public health programs.

"They are part of the complexity of tying together different players and actors in a systems approach. Measuring partnership tells you how engaged those different actors and parts of the system are and you can see the gaps."

Emily Harper, from ACT Health, said the Prevention Centre was a strong contributor to the evaluation and assessment of the HWI, including the very important measure of partnership.

"It was an immediate quality improvement tool and a long-term tool to track how working across government functions over time," said Ms Harper, Director, Health Improvement Branch, Population Health, ACT Health.

"We used that work to address problems in the HWI partnership and to track it over time in a systems-focused way."

Capturing the bigger picture: the cross-jurisdictional evaluation forum

Queensland Health policy maker Mathew Dick describes the “wake-up” moment when he realised evaluation of their prevention programs was failing to capture the richness of their impact.

It happened when a peak body reported back to the department about a program to improve nutrition and physical activity in after-school care. The team had successfully met their targets and reached a significant proportion of services in Queensland.

In the questions at the end of the presentation, the team mentioned the project had “transformed” the sector’s views of nutrition and physical activity.

“We hadn’t captured that in any of the indicators we had asked them about because they were very much transactional, activity-based indicators,” Mr Dick said.

“It was one of those wake-up moments for us – that we’re only telling a small part of the story when we report on activity-based indicators.”

Mr Dick, a manager in the Preventive Health Branch, tells this story to illustrate the importance of the Prevention Centre’s support for governments to evaluate complex prevention programs.

He took part in the cross-jurisdictional evaluation forum, a national forum that supports state and territory policy makers to take a complex systems approach to evaluating their public health programs.

The forum had inspired him to enhance the complex systems approach to evaluation, to ensure it captures the full story and impact beyond the numbers, he said. The Queensland Health team revisited its own evaluation framework after the first meeting of the forum.

“I was highly influenced by the forum in our ongoing development of the evaluation framework,” Mr Dick said. “It prompted us to consider different ways that systems thinking and methods could be strengthened in our global evaluation of the prevention program and also into each of the different projects that come from the program.”

Mr Dick said his team modified the service agreement for providers to incorporate measures that begin to capture the “layered systems-level indicators of what’s actually changing in the community”.

The policy maker’s view: Mathew Dick

“It was one of those wake-up moments for us – that we’re only telling a small part of the story when we report on activity-based indicators.”

Pathways for scaling up public health interventions

When a local public health intervention is successful, governments may consider scaling it up so that it benefits more people. There has been little research that helps policy makers decide whether programs are 'scalable', that is, if they will work and be widely adopted, acceptable and cost effective when rolled out at state or national level.

Professor Adrian Bauman and his team at the University of Sydney reviewed 40 complex public health programs in high-income countries that had been scaled up or implemented at scale to document the pathways the programs followed so they could develop a conceptual framework of scaling up as it happens in the real world.

The framework involved four stages: development, efficacy testing, real-world trial and dissemination. The team then mapped the programs against this framework to find out the extent to which this process was being adopted in the real world.

Their findings identified steps that will assist policy makers and practitioners to use best practice when scaling up public health programs.

What we found

- We found that in many cases (45%), the scaling up did not follow all the steps we know are important to ensure they are based on evidence
- Many programs were rolled out without having the evidence in place to indicate they would work at scale. In fact, some programs went directly from the development stage to population-wide dissemination – without efficacy testing or a real-world trial
- We found four patterns in scaling up complex public health interventions:
  1. Scaling up that follows all four stages of development, efficacy testing, real world trial and dissemination (55%)
  2. Scaling up without testing the efficacy of interventions at scale (5%)
  3. Scaling up without conducting a real-world trial (25%)
  4. Scaling up without efficacy testing or a real-world trial (15%).
- Programs are scaled up for many reasons, not just because there is evidence they will work at scale. Political pressures may be behind the roll out of some complex public health programs internationally.

What is the impact?

- This study was the first to classify and quantify the different ways that public health programs in high-income countries are scaled up to reach the broader population
- The work to the research informed NSW Ministry of Health work around scale up and development of a scalability assessment tool and other decision support tools.

Seeking consistency for scaling up community interventions

A Prevention Centre project produced the first comprehensive evidence synthesis in Australia aiming at guiding policy makers in what strategies to use when scaling up interventions in the community.

The project, led by Associate Professor Luke Wolfenden at the University of Newcastle, NSW, conducted a series of systematic reviews of trials assessing the impact of strategies to implement policies, practices or programs targeting smoking, nutrition, alcohol, physical activity or obesity, which were implemented in childcare services, schools, workplaces and sporting clubs.

It revealed that the effects of implementation strategies were modest and that often researchers were not using implementation theory or frameworks.

With the evidence base still developing, there was no 'recipe' for how to scale up interventions in community settings in Australia, the study found.

However, it suggested that co-production was a good way to ensure implementation was feasible in community settings.

Prevention system

We are using a combination of systems thinking and approaches to reveal the connected and inter-related components of the different systems that influence chronic disease. This helps us to understand how changing one part will influence others and which interventions are likely to have the greatest impact.

Prevention Tracker: Learning from local communities

The Prevention Tracker project helped communities to unearth some key problems in their local prevention system that could be critical in improving their approach to chronic disease prevention.

The Prevention Tracker project showed that tweaking the local chronic disease prevention system in communities can change the way they work – beyond just making structural change in policies and programs – to overcome problems that hamper prevention efforts.

Prevention Tracker worked closely with four communities to explore their local prevention activities and investigate whether applying systems tools and methods could help them reorientate their work to increase impact without the injection of additional funding resources.

The project showed that it is possible to take a systems-thinking approach in research into chronic disease prevention in communities, and to work with them to understand local prevention systems and to guide and monitor change at the system level.

“This transformational change is the most difficult thing to change but the most important. It’s not just a change in a policy – but a change in mindsets, mental models and paradigms,” said investigator Liza Hopkins.

After a successful pilot in Glenorchy, Tasmania, we expanded the project to Albany, WA, Broken Hill, NSW and Gold Coast, Queensland.

In each community, the aim was to understand the complex systems in which local prevention efforts are undertaken. The research team investigated many of the things that go into making up prevention systems, such as local programs, policies and activities, organisations involved in prevention and the networks between them, local leadership in prevention, the prevention workforce and the kinds of information and evidence which inform local decision-making.

They gathered and analysed this data to draw out what they thought was most important and relevant for each community. These findings were mapped on a visual diagram by a graphic artist.

The team then took the diagram back to the community and undertook a series of systems workshops with local stakeholders to identify a systemic problem which they recognised as having an effect on the way prevention work was carried out across the community.

>

Image: John Bosich

What we found

- There is a high level of prevention activity happening in communities, however the Prevention Tracker team was unable to identify a consistently visible prevention system like other social systems such as healthcare or education
- Organisations undertaking prevention are connected in varying ways such as sharing information and resources
- The prevention workforce is often part-time workers, including many volunteers; people working in prevention do not always see themselves as having a prevention role
- Systems mapping enabled local stakeholders to engage with data and identify systemic problems in prevention
- Systems-action learning processes enabled practitioners to have an impact in the broader chronic disease prevention system.

After the systems mapping process, each community identified deep systemic problems which, if addressed, had the potential to improve the way prevention activities were undertaken across the board, not just in specialised or siloed areas such as smoking cessation, alcohol control, physical activity programs or healthy eating initiatives, said project lead Dr Therese Riley.

"We expected them to all come up with whatever their health topic was and do something on obesity or physical activity. But when they let go of their agendas and biases, in all of the communities the problems were about working together and how to improve collaboration. For them, it was all about how to create these connections and interactions," she said.

Three existing prevention initiatives in the communities were identified to take part in a series of systems-action learning cycles, to help practitioners and others implement changes at a systemic level. These changes allowed the communities to reorient practice and identify opportunities to change the perceptions which drive practice.

Through participating in systems action learning, community stakeholders gained a better understanding of local practice and the opportunities which exist to shift the mental models that underlie transformational systemic change.

"People come to every situation with a history, with a remembered past and an anticipated future. These norms and beliefs are some of the most potent drivers of what people will and won't do. Altering these mental models – how people think – is the most critical thing for change," Dr Riley said.

"Through our research project we have identified ways of identifying and monitoring systems action, insight and impact, to help communities continue to embed sustainable systemic change in prevention practice."

A new way to improve healthy food options in Albany

It took some time for the WA Country Health Service's Kate Jones to get her head around systems thinking when she first started working with Prevention Tracker in 2017.

But the insights and new knowledge generated by using systems methods changed the way that one local government in the Great Southern region of WA engages vendors and the public to improve the supply of healthy food at council events.

"Prevention Tracker has widened our view of the system we work in," Ms Jones said.

"It's helped us see things that we hadn't seen before, to become less insular," she added.

Ms Jones, who worked with the City of Albany as part of the Healthy Albany partnership, said the overall aim was to try to build preventive health into all the local government authority's policies.

As a demonstration project, the City piloted a program to increase the supply of healthy food and drinks at council events. However, despite some success, the events team had not been able to engage as many food vendors as they would like. With Prevention Tracker's help, the team applied the systemic inquiry process to the healthy events project, mapping resources and relations, what they had learnt from the pilot, and what assumptions had informed the development of the project.

"We found systems inquiry gives you a new way of looking, listening, learning and doing," Ms Jones said.

"By drilling down further into the problem around engaging some vendors, the process helped us realise we really needed to find vendors who identified with our goal.

"It was about breaking down the assumptions and drilling down to

their motivating factors so we could tailor our engagement techniques," she added.

According to Ms Jones, the systems inquiry revealed two key things: the team was letting their assumptions influence and lead aspects of the project; and there were leverage points they had not previously considered.

They identified the barriers to engagement and addressed them by demonstrating public demand for healthy food through a Facebook survey, giving vendors more public recognition, refining application processes and upskilling council events staff.

"The main impact of this work is we now have better vendor and community engagement, which helped build the profile of the whole project," Ms Jones said.

"As a result, we think we have started changing expectations around what is provided at events. People are starting to expect there will be healthy choices available."

Investment in less tangible resources could be key to better health

It's not enough just to provide more funding and staff when it comes to building communities' capacity for change. We need to pay close attention to the community context and make sure communities have the resources they really need to create change, says Dr Shane Kavanagh of La Trobe University.

His project showed that in some communities, it would be more effective to target investments to develop less tangible resources like trust and social networks before spending money on interventions.

"Despite our best efforts many programs to improve health behaviours show disappointing results. It seems we may not be investing in the right things," Dr Kavanagh said.

"We often assume that the resources the communities need to create change are material and economic resources. These are crucial, especially for disadvantaged communities. But if you go to the community, what they often talk about is the need to build trust, nurture self-confidence and build relationships."

For example, some communities have a deep mistrust of services linked to the government. In these communities, workers and volunteers put their efforts into building trust and respect before health messages are shared.

The project aimed to find ways of investing more effectively by identifying all the types of resources that communities need to improve their health. It did this through in-depth interviews with people involved directly or indirectly in chronic disease prevention programs in Tasmania.

It discovered that while funding is crucial, non-traditional resources such as trust, confidence, hope, dignity and respect are also vital for programs to be effective.

These resources are supported by other resources including emotionally safe spaces free of stigma, shared experience, social support and acceptance.

An important strategy was to enable community members to act as agents of change. There was mistrust and at times anger from communities toward government, and community members felt they were often better placed to identify and create change.

"If there's a take-home message, it's that policy makers sometimes need to invest in building up the emotional, social and relational resources within communities before the bigger changes that lead to improvements in health can occur.

"Now we are trying to make the intangible, tangible - new forms of economic valuation of resources will be needed to measure success."

Describing, assessing and strengthening the prevention system

There are frameworks for strengthening systems such as healthcare, transportation and education – but Prevention Centre researchers realised there were no clear frameworks or ways of describing, assessing and strengthening systems for chronic disease prevention.

A project led by Dr Lori Baugh Littlejohns, a Canadian public health researcher who was based at Deakin University in Melbourne, set about addressing this gap. She conducted a rigorous systematic review of the chronic disease prevention literature and used the findings to develop a definition of a prevention system, as well as outlining its seven key attributes and dimensions.

"What is new is having a definition that people can work with and having a set of attributes or building blocks that are specific to prevention systems," Dr Baugh Littlejohns said.

The research describes systems for chronic disease prevention in terms of "diverse entities at multiple levels in unique and ever-changing contexts due to dynamic relationships among entities and actions". This definition sets the stage for further understanding the dynamic nature of key attributes that include collaborative capacity, leadership, health equity, resources, information, implementation of desired actions and complex systems paradigms.

The project also saw the development of a visual representation of the definition and the attributes.

"This framework can help us find the linkages among entities, actions and attributes and potentially the feedback mechanisms to amplify or to disrupt in order to strengthen chronic disease prevention," Dr Baugh Littlejohns said.

Making the case for prevention

Despite the burden of lifestyle-related chronic disease and the opportunities for prevention, only a small percentage of Australian government budgets for healthcare is spent on prevention. Our research helps our policy partners to communicate the benefits of prevention, to engage the public, and to drive action.

The public and prevention: a new research partnership

An innovative program explored ways to communicate the value of chronic disease prevention.

Program lead Professor Penny Hawe, from the University of Sydney, said the economic case for chronic disease prevention was clear, yet governments invested miniscule amounts in it.

"In this part of the Prevention Centre's work, we've explored new and more innovative ways of communicating prevention and learnt from people and organisations we've not worked with before," Professor Hawe said.

"In the past, as a field, we've told people the results of our research. We've told them what to do, in terms of health behaviour, but we've never tapped the power of involving masses of people in prevention as a form of knowledge co-production," she said. "The Prevention Centre has enabled that shift. It's been eye opening."

One part of the project is a citizen science initiative aimed at supporting women to breastfeed after they return to work. While almost all (96%) of Australian mothers start breastfeeding, only 15% of babies are exclusively breastfed at five months of age. More widespread supportive workplace policies could change that.

In the project, a partnership between Prevention Centre researchers, the Australian Breastfeeding Association and South West Sydney Local Health District, people use their smart phones to take photos and gather information about the distribution of policies to promote breastfeeding after return to work.

Researcher Dr Samantha Rowbotham said citizen science was a way to engage the public in creating the evidence about prevention.

"Population health science can be relevant and fun," Dr Rowbotham said. "We are using citizen science as a way of creating awareness about health promoting policies that people can see in their local communities."

The research program also developed and tested new ways to communicate prevention. Associate Professor Thomas Astell-Burt, from the University of Wollongong, and the team examined the effectiveness of preventive public policies in comparison to medications, such as those for reducing cardiovascular risk factors.

They found that population health interventions, such as retaining green space, smoking bans and reducing salt in food, could have equivalent or even greater effects than some medications.

In other projects, a collaboration with the Australian National Centre for the Public Awareness of Science (CPAS) produced a podcast series on population health science, *Life in a Herd*. It was part of the popular science program *The Wholesome Show*.

CPAS collaborators also developed strategies to help reframe accusations against "the nanny state", refining these in a researcher and policy maker workshop. CPAS collaborators showed that mainstream science museums could be used to interact effectively with and engage the public in appreciating the social determinants of health.

CPAS is also pioneering ways to engage the public in dynamic simulation models about preventive interventions, by turning them into interactive computer games.

"We're working out how to get prevention ideas into the mainstream," Professor Hawe said. "The consequences could be transformational."

Ambitious systems model aims to build a compelling case for prevention

A project building a compelling health and economic case for prevention showed the impact of chronic disease across key risk factors.

In an Australian first, our Compelling Case project built a proof-of-concept national dynamic simulation model that shows the interaction and contribution of key lifestyle-related risk factors to the burden of chronic disease.

This flagship project aims to provide policy makers with tangible evidence of the value of investing in prevention through demonstrating the changing and combined effects of different policies to address chronic disease, what will happen decades into the future, and the potential cost-savings of addressing different risk factors.

The Prevention Centre previously used dynamic simulation modelling to explore specific policy questions for single risk factors, such as harmful alcohol use, for state health departments (see page 18).

This is the first dynamic modelling project to explore multiple, interacting risk factors for chronic disease, enabling researchers to study inter-relations between the risk factors and diseases in Australia and their economic burden.

For example, we know that an unhealthy diet and lack of physical activity cause obesity, all of which cause cardiovascular disease independently and in combination. What is new about this model is that it can quantify some of these interactions, rather than measuring the impact of a single risk factor, and then ask "what if" questions about where best to invest across the common risk factors for chronic disease.

To date, this ambitious and ongoing project developed a proof-of-concept model that demonstrates the contribution of five key modifiable risk factors – risky alcohol use, tobacco smoking, high body mass, unmanaged high blood pressure and physical inactivity – to key diseases and the associated economic burden.

The project is now building a national interactive model linking the five risk factors, at least 10 disease groups and the short- and long-term economic benefits of five interventions. The model was built using Global Burden of Disease study data combined with research and evidence on the effectiveness of selected prevention interventions.

A team of modellers is working on the project including Mark Heffernan and model co-architect Dr Geoff McDonnell, from the Prevention Centre, who said the model showed the value of addressing multiple interacting prevention interventions.

"We also found ways to integrate the effects on both the national population and changing individual lives at the community level," Dr McDonnell said. "An example of this is if we find ways to stop young people from starting smoking at an individual level, the aggregate model will show us the effect on smoking outcomes at the population level."

A key component of this project is demonstrating the economic value of investment in specific prevention interventions and determining how best to target strategies for maximum impact.

Health economist and a project lead, Professor Rob Carter, said any project that aimed to build a compelling case for prevention needed to incorporate the economic burden of chronic disease risk factors and the economic benefits of addressing those risk factors.

"A big part of the project was pulling together knowledge about the economic burden of chronic disease that we already had – but putting it together in a way that we could start to distil key messages that might have an impact," he said.

ACT Chief Health Officer Dr Paul Kelly, who was involved in the stakeholder group, welcomed the project's emphasis on health economics.

"The health economists' knowledge and perspective is going to make this project even more influential with policy makers and politicians because it will have that dollar sign attached," he said.

The researcher's view:
Professor Rob Carter

"We have developed a coherent case about risk factors, about the importance of addressing those risk factors, about why it matters to people, to companies and to the government. It is a big vision – but we're putting it into manageable chunks."

The policy maker's view:
Dr Paul Kelly

"Like all Prevention Centre modelling projects, the Compelling Case project brought together public health practitioners, public health policy makers and modellers, but it also brought in health economists. That's one of the groundbreaking components of the project."

What do people really think about governments' role in preventive health?

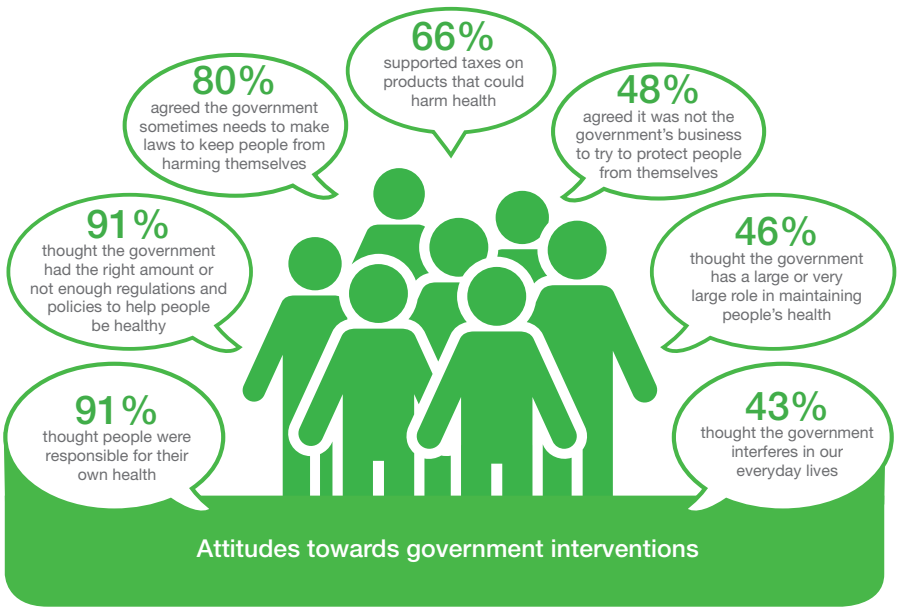
There has long been debate about what role governments should play in regulation for preventive health, with some commentators viewing government regulation and health promotion activities as constituting a "nanny state".

Decisions on prevention policies may gain or lose momentum depending on policy makers' perceptions of how they will be received by the general public, but there has been little research into Australian community knowledge and attitudes on prevention.

AUSPOPS (The AUStralian Perceptions of Prevention Survey) is a national population survey first conducted in 2016 to quantify community attitudes and values towards government interventions for prevention. The survey is to be repeated in late 2018 and in 2022.

What we found

- People's views are more nuanced than a simplistic "nanny state vs freedom" argument
- People can simultaneously hold contradictory views, depending on the target of the intervention, the risk factor being addressed and how the intervention is implemented
- A majority believed the government had not gone far enough in restricting advertising of unhealthy foods to children, setting salt limits on processed food and putting health ratings on packaged food
- Although most people think personal responsibility for health is important, it does not preclude a role for government in helping people stay healthy
- Alternative ways of conceiving the government's role in health, other than the "nanny state", include as a wise investor of taxpayer money, a leader for healthy behaviour, and a partner in prevention.



What is the impact?

- These findings showed that it is important not to let debate about new policy and legislation be hijacked by "nanny state" arguments
- To align better with community perceptions of prevention, it would be more helpful to reframe the debate to focus on the cost benefit, equity, the influence of vested interests and the likely effects of both action and inaction.

The researcher's view:
Dr Anne Grunseit

"One of the biggest barriers that's sitting in front of prevention is risk aversion by policy makers. This research directly speaks to them and says you're safe in going down the regulation path. Don't listen to what's in the newspapers because it's probably not coming from the community. If policy makers take that up, it can have real impact."

Preventive health: How much does Australia spend and is it enough?

A report written by the Prevention Centre's Hannah Jackson and Professor Alan Shiell, from La Trobe University, calling for more targeted spending on prevention, was launched at a forum at Parliament House in Canberra in 2017 and led to a special issue of the *Health Promotion Journal of Australia* to further raise awareness of the issue.

The report found a strong case could be made for increasing spending on the prevention of chronic disease because it is cost effective, even if it means removing funding from other parts of the health system. However, the level of Australia's spending on prevention was a poor guide to how much should be spent.

A better argument would be to look at the cost-effectiveness of prevention activities, weighing up their value-add not just in terms of savings, but in improved equity and quality of life.

To investigate the issue further, the Prevention Centre joined with the Foundation for Alcohol Research and

Education (FARE) to co-sponsor a special issue of the *Health Promotion Journal of Australia.*

It comprised commentaries by invited national and international policy makers, researchers and practitioners on the "best buys" if they had an extra $100 million per year to spend on prevention in the next four years, an increase in spending of 5% of the current annual budget.

The commentaries suggested there is no single magic bullet or pill for chronic disease prevention. Rather, there is a need for long-term, systematic, multisector whole-of-population and whole-of-government investment in, and commitment to, prevention.

Most of the commentaries said obesity was a critical target for prevention, with a focus on school-aged children and obesogenic environments. We should not become complacent about tobacco control, and need to develop strategies for remaining high-prevalence populations.

The authors said legislation, regulation and fiscal messages have an important role to play, and called for a single coordinating organisation with the mandate and leadership to manage and better integrate cross-sectoral approaches to prevention.

The special issue, which was published online in July 2018, was accompanied by a series of blogs published on the Prevention Centre and Croakey websites. The Prevention Centre partnered with FARE to promote the special issue and blogs in a coordinated social media campaign.

Advising policy makers on economic evaluation in public health

Prevention Centre researchers were engaged by the NSW Ministry of Health to increase staff capability and to provide technical support for its process of commissioning economic evaluations in public health.

Professor Stephen Jan, from The George Institute for Global Health, and his team worked on a Prevention Centre project that developed guidelines for economic analysis of prevention programs, ensuring they would capture the benefits of prevention beyond traditional bottom line measurements. They prepared a guide on commissioning economic evaluations as a resource for the NSW Ministry of Health.

Professor Jan and Senior Research Fellow Dr Thomas Lung were then engaged to run a series of workshops for Ministry staff on commissioning economic evaluations. They also worked with the Ministry as health economic advisers to plan a roundtable event on childhood obesity.

"It means these commissions are put out on a more consistent basis and they generate evidence that's much more usable because it's based more on sound economic principles rather than ad-hoc costings," Professor Jan said.

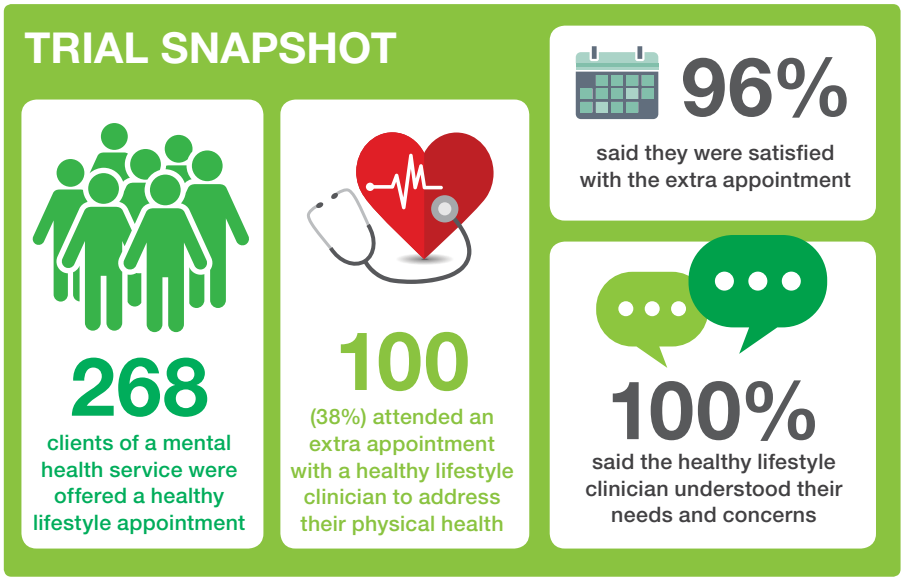
"It's about process – helping NSW Health to commission research in this area of economic analysis in a much more effective way and in a way that's methodologically more sound."

Populations and settings

We are developing and testing prevention strategies for high-risk populations, such as those in rural and remote communities, Aboriginal and Torres Strait Islander people, and those with mental illness. We are researching preventive health strategies in different settings, from primary care to hospitals and schools.

A focus on healthy lifestyle for people with mental illness

A randomised controlled trial paved the way for improved delivery of preventive healthcare in mental health services.



Embedding a healthy lifestyle clinician in a community mental health service could be an effective way of preventing chronic disease in people with mental illness, according to a trial that found this approach was acceptable to clients.

People with mental illness are much more likely to suffer from chronic diseases than the rest of the population. Part of the problem is that they are more likely to engage in health risk behaviours such as tobacco smoking or not getting enough physical activity.

A Prevention Centre project led by Professor Jenny Bowman of the University of Newcastle aimed to test whether it was possible to increase the delivery of preventive care in mental health services.

It found that more than a third of clients welcomed the offer of a healthy lifestyle appointment which aimed to support clients in making positive changes to their risk behaviours. This offer was made regardless of the severity of their mental illness, whether they were interested in changing their health behaviours, or even whether they needed help.

“This is an incredibly important finding. It indicates that people will want this, it will be seen as a positive,” Professor Bowman said.

Even though policy and guidelines for mental health services recommend that preventive care is given routinely whenever people come into contact with the health system, it is rarely provided or taken up by clients.

In a trial over seven months, the researchers randomised 800 clients to receive either usual care or usual care plus a healthy lifestyle appointment, provided in the same location as the mental health service.

The appointment included an assessment of their behavioural risks, advice on how to address them, and referral to free telephone services such as NSW Quitline and NSW Get Healthy.

It found that more than a third of clients took up the offer of the extra appointment, and that they were highly satisfied with the preventive care they received from the healthy lifestyle clinician during this appointment. In addition, approximately half of the clients who were offered a referral to the Quitline or Get Healthy service by the healthy lifestyle clinician accepted this offer; linking them up with further support to assist them in changing their health risk behaviours.

The researcher’s view:
Professor Jenny Bowman

“We don’t want people to be falling between the cracks. There needs to be a recognition of the issues of physical as well as mental health. This work will help us show health planners what they need to do to commit to a service like this.”

The role of health services in preventing obesity

While there is a push for health services to tackle obesity by delivering prevention services, the issue is complicated by the fact that health professionals don't routinely weigh patients or ask them about their nutrition or physical activity.

There are various practical reasons for this – lack of time, payment and referral pathways – but there is also evidence that ingrained attitudes about people who are obese play a role in this reluctance to actively manage obesity.

One of the Prevention Centre's PhD projects investigated how obesity prevention could be better incorporated into health services beyond primary care, using ACT Health as a case study.

PhD candidate Claire Pearce, from ACT Health, studied how professional perspectives, boundaries and relationships affect how obesity prevention is perceived and consequently incorporated into health services.

The project consisted of interviews with ACT Health staff in policy, population health or clinical service executive roles, as well as community health-based managers, nursing and allied health clinicians. The interviews focused on developing an understanding of participants' views on obesity and their perception of the role that health plays in obesity prevention.

What we found

- Guidelines developed for use in health services applied a simple, linear approach to obesity prevention: assess, provide advice about nutrition and physical activity, and refer on for support. This linear approach fails to address the complexity of obesity. As a result, obesity prevention guidelines are not consistently implemented in health services due to a sense of futility about what can be done for people who are already overweight
- There was a perception among participants that obesity is an individual choice. Some saw clinicians' roles as imparting information to the individual and then leaving it up to them to make 'better' choices, while others believed it was necessary to help steer people toward better food choices through population-based initiatives such as limiting the marketing of junk food or taxing unhealthy foods
- The interviewees said prevention was difficult to fit within the existing medical model of care, which predominantly groups people by disease rather than functional issues
- Some questioned whether calling obesity a disease implied that an individual needed to be 'cured', even in the absence of poor health. Others said that if obesity was not classified as a disease, it would perpetuate its failure to fit it into a disease-focused medical model of care
- The challenge of improving overweight and obesity within a health system is susceptible to other external pressures such as restructures, changes in government, roles and responsibilities and agendas.

What is the impact?

- The project is one of two Prevention Centre PhD projects focused on the issue of obesity in which the lead researchers are embedded in the ACT Health policy environment
- This concentration of research in a policy environment is drawing increased attention to prevention
- The increased visibility around prevention has also helped improve engagement between policy, practice and researchers.

The researcher's view:
Claire Pearce

"Managers and clinicians in the ACT believe health services have a responsibility to work with people who are overweight and obese, but the community-based services lack the capacity for the sustained effort required. Obesity prevention needs more than just telling people to eat less and move more. A systems approach to care is needed to develop an approach outside of the traditional medical model."

Leveraging PHNs' role in chronic disease prevention

A Prevention Centre project is identifying what preventive health strategies work in primary care, with a view to enhancing the role that the nation's 31 Primary Health Networks (PHNs) can play in reducing the burden of chronic disease.

Despite there being abundant evidence about how to prevent chronic disease in primary healthcare in Australia, there are still gaps in the preventive care provided in practice, as well as inequities for disadvantaged groups.

The project brought together representatives from more than 20 of the 31 PHNs, the Australian Government Department of Health and non-government organisations to assess what can be done to help PHNs use resources more effectively to better prevent and manage chronic disease.

This led to the establishment of an online Community of Practice – a network of PHN representatives who can exchange knowledge and ideas about prevention and learn from each other.

"Bringing PHNs together helped us to learn what key characteristics are needed to make prevention programs suitable to implement, scale-up and to be ultimately sustainable," said Prevention Centre Director, Professor Andrew Wilson.

It also gave the project's lead investigator, Dr Melissa Hobbs, an opportunity to learn what types of prevention activities and programs PHNs are already undertaking, and the barriers and enablers to implementing prevention initiatives in primary care.

The role of PHNs in prevention will likely be focused on preventive care provided in clinical practice. Several practice facilitation models, which involve PHNs working with primary care practices to improve chronic disease prevention and management for patients, are being explored as part of the project.

"Bringing PHNs together helped us to learn what key characteristics are needed to make prevention programs suitable to implement, scale-up and to be ultimately sustainable"

Professor Andrew Wilson

Make childhood weight management programs part of usual care

In Australia, there is no national, universal public health program for families of children who are already overweight or obese, despite well-established evidence about the effectiveness of these services.

Using a case-study approach, a Prevention Centre project led by Dr Helen Vidgen and her team from Queensland University of Technology identified barriers and enablers to the universal availability of childhood obesity management services, examining two state-wide programs, Go4Fun® in NSW and PEACH™ in Queensland.

What we found

- The project found that childhood overweight and obesity management programs will only succeed long term if they are embedded into the healthcare system with formally appointed and funded internal implementation leaders, strong communication and reporting at all levels
- The management of childhood overweight and obesity does not have a clear position in the Australian healthcare system. Responsibility shifts along the healthcare continuum from prevention to treatment at the whim of philosophical differences, making ongoing service delivery vulnerable to changes in government and funding priorities. Without a clear position in the healthcare system, service delivery is inconsistently available to families and limits their ability to take action to address this health issue.

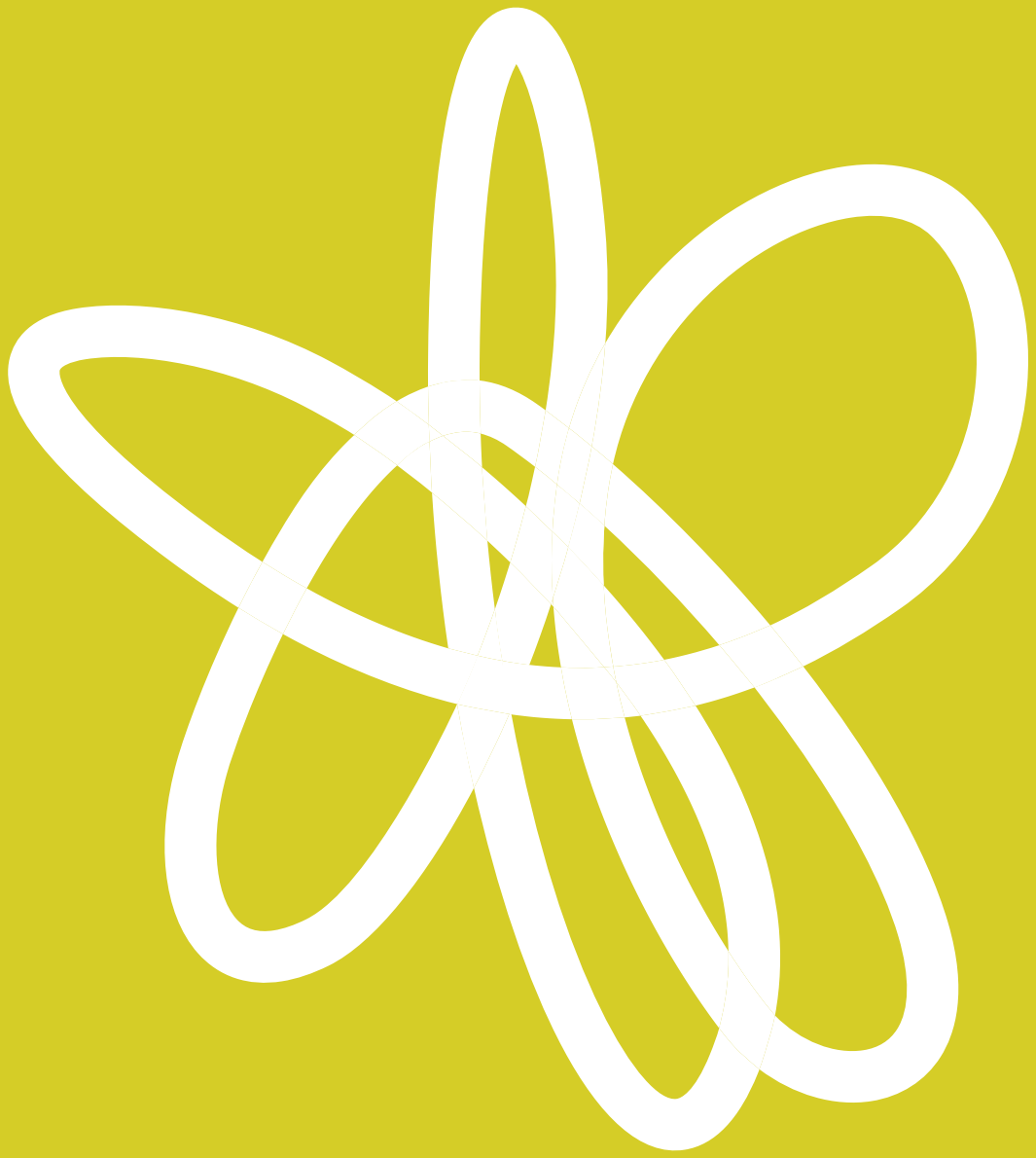
The researcher's view:
Dr Helen Vidgen

"For children who have abnormal test results in any other condition, there are referral and treatment pathways, but health professionals are often unsure what to do with a child who's overweight or obese. We hope our project can change that."

What is the impact?

- The project provided a clear mandate for childhood overweight and obesity management programs to be embedded as part of usual care in the public health system in Australia
- A week after a panel presentation of the project's findings at the ANZ Obesity Society Conference in October 2016, the Queensland Health Minister was briefed on the issue and more funding was committed for child weight management services
- The project laid the foundation for broader consultation with other jurisdictions involved in secondary prevention and management of childhood obesity and other potential stakeholders, both public and private
- Queensland's Chief Health Officer, Dr Jeannette Young, responded to the research, saying there was a need to offer childhood obesity management services to children in Queensland.

People, papers and projects



Leadership Executive 2013 – 2018

The Leadership Executive advises on operational aspects of the Prevention Centre, provides direction for the research agenda and capacity building activities. Members provide technical expertise and leadership in their specialties when required.

Professor Andrew Wilson

Associate Professor
Sonia Wutzke (2013 – 2017)

Professor Adrian Bauman

Professor Penny Hawe

Professor Sally Redman

Professor Alan Shiell

Associate Professor
Sarah Thackway

Scientific Advisory Committee

The Scientific Advisory Committee comprises international members who function as an external reference group and advise on overall scientific direction.

Professor Diane Finegood
(Professor at Simon Fraser University, BC, Canada)

Professor Mike Kelly
(Institute of Public Health, University of Cambridge, UK)

Professor Garry Jennings AO
(University of Sydney)

Professor Ray Ison
(Open University, UK and Monash University)

Funding Partners

The Prevention Centre is one of three National Health and Medical Research Council (NHMRC) Partnership Centres for Better Health, created to improve the availability and quality of research evidence to health decision makers.

From 2013 – 2018, we were provided with $22.6 million by our Funding Partners: NHMRC, Australian Government Department of Health, NSW Ministry of Health, ACT Health and the HCF Research Foundation.

In 2017, the Australian Government, through the Department of Health, provided us with a further $10 million for 10 specific research projects under the Boosting Prevention program, which is funded from the Medical Research Future Fund.

In 2018, we were refunded for a further five years. Our new Funding Partners are:

– NHMRC
– Australian Government Department of Health
– ACT Health
– Cancer Council Australia
– NSW Ministry of Health
– South Australian Department for Health and Wellbeing
– Tasmanian Department of Health
– VicHealth.

Administration

The Prevention Centre is administered by the Sax Institute in Sydney.

saxinstitute
Supporting smart decisions. Powered by research.

Collaborating Partners

Through our Chief Investigators, the Prevention Centre has links with the following universities, policy agencies and organisations:

Universities

- Australian National University
- Broken Hill University Department of Rural Health – University of Sydney
- Deakin University
- Flinders University
- La Trobe University
- Macquarie University
- Monash University
- Queensland University of Technology
- RMIT University
- The University of Melbourne
- The University of Newcastle
- The University of Notre Dame Australia
- The University of Queensland
- The University of Sydney
- University of Tasmania
- University of Wollongong
- University of Western Australia
- UNSW Sydney
- Western Sydney University

Research centres and institutes

- Menzies Centre for Health Policy
- The George Institute for Global Health
- Menzies School of Health Research
- Baker Heart & Diabetes Institute

Government departments and agencies

- ACT Health
- Australian Government Department of Health
- Australian Government Department of Infrastructure and Regional Development
- Department of Health & Human Services, Victoria
- Department of Planning and Environment, NSW
- Department of Premier and Cabinet, NSW
- Gold Coast Health
- Hunter New England Population Health
- NSW Ministry of Health
- NSW Treasury
- NT Health
- Queensland Health
- SA Health
- Tasmanian Government Department of Health and Human Services
- WA Country Health Service

Non-government and industry agencies

- Cancer Council Australia
- Cancer Council NSW
- FARE - Foundation for Alcohol Research & Education
- Heart Foundation
- RobertsDay Urban Planning
- The Hospitals Contribution Fund of Australia Limited.

The Coordinating Centre

The Coordinating Centre is responsible for managing the business of the Prevention Centre, including project oversight, funding and accountability, and delivering a number of strategies to enable the research partnership.

Members

Professor Andrew Wilson
Director

Ainsley Burgess
Publications Manager

Dr Seanna Davidson
Systems Thinking and Capacity Building Manager

Helen Signy
Communications Manager

Emma Slaytor
Associate Director

Nick Barker-Pendree
Administration Officer

Kathryn Placencia
Project Officer

Published research

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People, papers and projects

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This list is current to 31 October 2018. At least another 50 publications are to come. For more details, please visit our website: www.preventioncentre.org.au

Our projects and research network

Our research is co-produced by teams of researchers and decision makers, with the Coordinating Centre supporting a network of more than 200 individuals and 40 distinct projects.

A comprehensive approach to Aboriginal and Torres Strait Islander tobacco control

Lead investigator
- Professor Sandra Eades

Project team
- Professor Emily Banks
- Professor Alan Cass
- Christina Heris
- Professor Sally Redman
- Adjunct Professor Lucie Rychetnik
- Laureate Professor Rob Sanson-Fisher
- Professor Andrew Wilson

Advisors
- Associate Professor Sarah Thackway
- Dr Catherine Chamberlain
- Susan Perlen

A systems approach to healthy and equitable eating

Lead investigator
- Professor Sharon Friel

Project team
- Professor Louise Baur AM
- Professor Rob Carter
- Megan Cobcroft
- Professor Amanda Lee
- Elizabeth Munn
- Dr Melanie Pescud
- Adjunct Professor Lucie Rychetnik
- Dr Gary Sacks
- Professor Alan Shiell
- Beth Thomas
- Eleanor Malbon

A systems perspective on the prevention of chronic disease for urban Aboriginal communities: Improving food security

Lead investigator
- Associate Professor Sumithra Muthayya

Project team
- Professor Sandra Eades
- Deanna Kalucy
- Professor Amanda Lee
- Janice Nixon
- Simone Sherriff
- Allison Tong
- Elizabeth Millen

AUSPOPS - AUStralian Perceptions of Prevention Survey

Lead investigator
- Professor Adrian Bauman

Project team
- Dr Anne Grunseit
- Dr Melanie Crane
- Dr Samantha Rowbotham

Barriers to, and strategies for, evaluating complex interventions

Lead investigator
- Laureate Professor Rob Sanson-Fisher

Project team
- Dr Megan Freund
- Dr Lisa Mackenzie
- Associate Professor Luke Wolfenden
- Alison Zucca
- Dr Alix Hall
- Dr Heidi Turon

People, papers and projects

Benchmarking obesity prevention policies in Australia

Lead investigator
- Associate Professor Gary Sacks

Project team
- Brydie Clarke
- Jane Martin
- Professor Boyd Swinburn
- Dr Stefanie Vandevijvere
- Professor Amanda Lee
- Professor Anna Peeters
- Professor Sharon Friel
- Emily Hadgkiss
- Professor Rob Carter
- Karen Peterson

Census of published economic evaluations of primary prevention strategies and interventions

Lead investigator
- Professor Alan Shiell

Project team
- Hannah Jackson
- Tess Cooper
- Maria Gomez
- Dr Foruhar Moayeri
- Vincent Pagiwa
- Diane Lorenzetti

Communicating prevention - approaches to prevention framing and story telling

Lead investigator
- Professor Penny Hawe

Project team
- Dr Vicki Arbes
- Dr Thomas Astell-Burt
- Dr Becky Freeman
- Professor Brian Head
- Dr Rod Lamberts
- Professor Joan Leach
- Dr Merryn McKinnon
- Dr Jo Mitchell
- Dr Samantha Rowbotham
- Tala Barakat
- Leah Marks
- Dr Helen Siuki
- Chedia Dhaoui
- Dr Jacqui Hoepner
- Associate Professor Cynthia Webster
- Dr Susan Tawia
- Sasha DeSilva
- Nicole Bridges
- Rebecca Gauld
- Karen Wardle
- Mandy Williams
- Elissa Kiggins

Developing a compelling case for prevention

Lead investigators
- Professor Rob Carter
- Dr Geoff McDonnell
- Professor Andrew Wilson

Project team
- Jacqueline Davison
- Mark Heffernan
- Jaithri Ananthapavan
- Paul Crosland
- Michael Lambert
- Helen Signy
- Annie Wang
- Alex DuMais
- Dylan Knowles
- Kurt Kreuge
- Kathleen Graham
- Associate Professor Jo-An Atkinson

Development of a cost-benefit analysis framework integrating inter-sectoral benefits of prevention

Lead investigators
- Jaithri Ananthapavan
- Professor Rob Carter

Project team
- Pam Nguyen

Project advisors
- Wayne Adams
- Professor Billie Giles-Corti
- Professor Penny Hawe
- Professor Stephen Jan
- Michael Lambert
- Dr Andrew Milat
- Professor Marj Moodie
- Professor Alan Shiell
- Louise Sylvan

Improving the economic analysis of prevention

Lead investigator
- Professor Stephen Jan

Project team
- Wayne Adams
- Jaithri Ananthapavan
- Professor Rob Carter
- Professor Billie Giles-Corti
- Dr Lucy Gunn
- Professor Penny Hawe
- Dr Alison Hayes
- Dr Tracey Laba
- Tom Lung
- Dr Andrew Milat
- Jan Shanthosh
- Professor Alan Shiell
- Beth Stickney
- Louise Sylvan
- Barry Edwards
- Shaun Larkin
- Hueming Liu

Measuring and mapping urban liveability across Australia - developing tools for use by policy makers, practitioners and researchers to identify inequities and plan better cities

Lead investigator
- Professor Billie Giles-Corti

Collaborators
- Associate Professor Thomas Astell-Burt
- Associate Professor Hannah Badland
- Dr Paula Hooper
- Dr Jerome Rachele
- Dr Suzanne Mavoa
- Vincent Learnihan
- Dr Xiaoqi Feng

Project team
- Dr Jonathan Arundel
- Dr Claire Boulange
- Stefan Cvetkovski

Advisors
- Professor Adrian Bauman
- Assistant Professor Bryan Boruff
- Professor Rachel Davey
- Dr Serryn Eagleson
- Professor Chris Pettit
- Professor Sally Redman
- Professor Gavin Turrell

Systems investigators
- Kate Lynch
- Matthew Richter
- Associate Professor Sarah Thackway
- Louise Sylvan
- Mike Day

Advisors
- David Williams
- Trevor Shilton

Methods for evaluating transformative systems change

Lead investigator
- Dr Shane Kavanagh

Co-investigators
- Professor Penny Hawe
- Professor Alan Shiell
- Mark Mallman

Project partner
- Kate Garvey

Pathways for scaling up public health interventions

Lead investigator
- Professor Adrian Bauman

Project team
- Dr Anne Grunseit
- Karen Lee
- Dr Andrew Milat
- Dr Devon Indig

Policy and practice in managing childhood obesity: Implementation case studies in Queensland and NSW

Lead investigator
- Dr Helen Vidgen

Project team
- Dr Penny Love
- Professor Lynne Daniels
- Professor Louise Baur AM
- Debbie Croydon
- Dr Jacqueline Miller
- Professor Chris Rissel
- Christine Innes-Hughes
- Judy Nean
- Associate Professor Sonia Wutzke
- Karen Innes-Walker

Policy and program implementation and the role of context in explaining prevention effectiveness

Lead investigator
- Professor Penny Hawe

Project team
- Dr Katie Conte
- Dr Sisse Groen
- Christine Innes-Hughes
- Amanda Lockeridge
- Dr Andrew Milat
- Dr Jo Mitchell
- Lina Persson
- Dr Samantha Rowbotham
- Abeera Shahid
- Associate Professor Sarah Thackway
- Mandy Williams
- Dr Dan Chamberlain
- Eileen Goldberg
- Leah Marks
- Dr Abby Haynes
- Seanna Davidson

Prevention Landscape: The status of prevention programs in Australian states and territories following two national prevention initiatives

Lead investigator
- Associate Professor Sonia Wutzke

Project team
- Dr Samantha Rowbotham
- Professor Andrew Wilson

Prevention Tracker proof-of-concept pilot: Learning from local data to activate systems for the prevention of chronic disease

Lead investigator
- Associate Professor Sonia Wutzke

Project team
- Maria Gomez
- Nick Roberts

Advisory Group
- Professor Adrian Bauman
- Dr Anne Grunseit
- Professor Penny Hawe
- Marge Overs
- Professor Andrew Wilson

Prevention Tracker: Describing, guiding and monitoring system change efforts in local communities

Lead investigators
- Associate Professor Sonia Wutzke
- Dr Therese Riley

Project team
- Dr Dan Chamberlain
- Dr Seanna Davidson
- Maria Gomez
- Dr Liza Hopkins
- Pippy Walker
- Dr Katie Conte

International Advisory Committee
- Professor Lesley Barclay
- Professor Pennie Foster-Fishman
- Professor Terry Huang
- Professor Barbara Riley
- Professor Andrew Wilson

Reconnecting urban planning with health - The development and validation of national liveability indicators associated with chronic disease risk factors and health outcomes

Lead investigator
- Professor Billie Giles-Corti

Project team
- Professor Adrian Bauman
- Assistant Professor Bryan Boruff
- Professor Fiona Bul
- Professor Chris Pettit
- Professor Sally Redman
- Professor Gavin Turrell
- Dr Serryn Eagleson
- Stephanie David

Academic team
- Dr Thomas Astell-Burt
- Dr Hannah Badland
- Dr Paula Hooper
- Dr Jerome Rachele

Technical team
- Suzanne Mavoa
- Vincent Learnihan
- Philip Kosiak
- Bridget Beasley

Advisors
- Dr Shelley Bowen
- Denise Laughlin
- Andrea Hay
- Dr Iain Butterworth
- James Collett
- Ross O'Donoughue
- Associate Professor Sarah Thackway
- Louise Sylvan
- Mike Day
- Cameron Dash

National advisors
- Professor Rachel Davey
- Dr Xiaoqi Feng
- Alison Camroux
- Kirsty Kelly
- Rod Duncan
- John Miller
- Melanie Chisholm

Systems investigator
- Denise Laughlin

People, papers and projects

Simulation modelling of alcohol consumption and the effectiveness of harm-reduction policies

Lead investigators
- Associate Professor Jo-An Atkinson
- Dr Jo Mitchell

Project team
- Rebecca Whitehead
- Kate Garvey
- Sylvia Engels
- Jaithri Ananthapavan
- Dylan Knowles
- Dr Ante Prodan
- Dr Geoff McDonnell
- Mark Heffernan
- Professor Sally Redman
- Adjunct Professor Lucie Rychetnik
- Professor Alan Shiell
- Professor John Wiggers
- Associate Professor Sonia Wutzke
- Vincy Li
- Nick Roberts
- Beverly Lloyd
- Dr Thomas Lung
- Suzanne Nieuwenhuizen
- Eloise O'Donnell
- Professor Andrew Page
- Dr Adam Skinner
- Pippy Walker
- Tim Roselli
- Mark West
- Margaret Bright
- Professor Lennert Veerman
- Professor Ron Borland
- Dr Adrian Reynolds
- Dr Raimondo Bruno
- Professor Chris Rissel

Simulation modelling to support decision making in gestational diabetes care

Lead investigator
- Louise Freebairn

Project lead
- Associate Professor Jo-An Atkinson

Project team
- Professor Roland Dyck
- Dr Paul Kelly
- Professor Nate Osgood
- Professor Alison Kent
- Allen Maclean
- Dr Geoff McDonnell
- Professor Christopher Nolan
- Adjunct Professor Lucie Rychetnik
- Anaita Safarishahrbijari
- Yang Qin
- Winchell Qian

Strengthening the role of Primary Health Networks in the prevention of chronic disease

Lead investigators
- Dr Melissa Hobbs
- Professor Andrew Wilson
- Elizabeth Flynn
- Dr Bernie Towler

The effectiveness of strategies to scale the implementation of community chronic disease interventions

Lead investigator
- Associate Professor Luke Wolfenden

Project team
- Professor Adrian Bauman
- Kathy Chapman
- Karen Gillham
- Melanie Kingsland
- Dr Andrew Milat
- Professor Chris Rissel
- Professor John Wiggers
- Dr Christopher Williams
- Dr Sze Yoong
- Fiona Stacey
- Alice Grady
- Ben Parmenter
- Tessa Delaney
- Jannah Jones
- Meghan Finch
- Dr Rebecca Wyse
- Dr Flore Tzelepis
- Dr Nicole Nathan
- Dr Amanda Williams
- Kirsty Seward
- Tameka McFayden
- Dr Rachel Sutherland
- Debbie Booth
- Dr Megan Freund
- Rebecca Hodder
- Dr Alison Fielding
- Dr Tara Clinton-McHarg
- Peter Butler
- Dr Vivian Welch
- Tim Regan
- Margaret M Farrell
- Dr France Légaré
- Dr Hervé Tchala Vignon Zomahoun
- Professor Ali Ben Charif
- Li Chai

The maintenance of Healthy Weight for Life program effects

Lead investigator
- Associate Professor Philayrath Phongsavan

Project team
- Professor Adrian Bauman
- Dr Andrew Cottrill
- Dr Anne Grunseit
- Bronwyn McGill
- Dr Blythe O'Hara

The price and affordability of healthy and current (less healthy) diets in Australia

Lead investigator
- Professor Amanda Lee

Project team
- Megan Cobcroft
- Mathew Dick
- Elizabeth Good
- Sarah Kane
- Dr Paul Kelly
- Timothy Landrigan
- Meron Lewis
- Lesley Paton
- Dr Christina Pollard
- Dr Rebecca Ramsay

Theory and methods of interventions in complex systems

Lead investigator
- Professor Penny Hawe

Collaborator
- Professor Alan Shiell

Project team
- Dr Shane Kavanagh

The role of public health law in preventing chronic disease

Lead investigator
- Jan Shanthosh

Supervisors
- Professor Stephen Jan
- Professor Maree L Hackett
- Professor Andrew Wilson

Translation of preventive care guidelines into community mental health service delivery

Lead investigator
- Associate Professor Jenny Bowman

Co-investigators
- Professor David Castle
- Professor Chris Rissel
- Professor Andrew Wilson
- Associate Professor Sonia Wutzke

Project team
- Dr Kate Bartlem
- Caitlin Fehily
- Richard Clancy
- Lauren Gibson
- Rhonda Patrick
- Professor John Wiggers
- Dr Paula Wye

Understanding and improving systems for preventing lifestyle-related chronic diseases

Lead investigators
- Dr Lori Baugh Littlejohns
- Professor Andrew Wilson

Why aren't health professionals telling us we're fat? Perceptions of overweight and obesity prevention in non-admitted health services

Lead investigator
- Claire Pearce

Supervisors
- Adjunct Professor Lucie Rychetnik
- Associate Professor Sonia Wutzke
- Professor Andrew Wilson

Workplace Health Insights: Cross-jurisdictional analysis of Healthy Worker Initiatives

Lead investigator
- Dr Anne Grunseit

Project team
- Dr Melanie Crane
- Dr Melanie Pescud
- Dr Samantha Rowbotham
- Associate Professor Sonia Wutzke

PhD scholarships

- Louise Freebairn
- Christina Heris
- Claire Pearce
- Jan Shantosh

This list is current to 31 June 2018. Please visit our website for a list of our current members at: www.preventioncentre.org.au

The last word

Emma Slaytor, Associate Director

In July 2018, the NHMRC announced that it was refunding the Prevention Centre, enabling us to continue to operate for another five years as an NHMRC Partnership Centre for Better Health.

The new funding means we are able to build on the strong foundations built in our first five years and turn our attention to translating our findings into sustained action.

Chronic disease remains Australia's number one cause of preventable death, disability and healthcare costs. We have good evidence about what needs to be done – our mission is to better inform policy and practice the decisions about what we do and how we do it.

In the next five years, we will expand our national focus, concentrate on implementation and scaling up to drive action, and extend our work with high-risk and vulnerable populations.

Our new work plan will continue to focus on systems approaches for chronic disease prevention. We'll be looking at how to improve whole of healthcare system engagement in prevention, study methods for implementation and scale up, and we'll continue our work on engaging the public and making the case for investment in prevention.

We will develop our work on healthy liveable cities, apply dynamic simulation modelling to bowel cancer screening, and look at options for reducing tobacco-related harms in high prevalence smoking groups.

This work is in addition to a number of projects launched in 2018 and funded by the Medical Research Future Fund under one of its first disbursements in 2017. These include research on the food and nutrition system, reducing the risk of the development of chronic pain, and addressing the chronic disease burden in people with a mental illness.

Building a prevention community in Australia remains a key part of our mission. We are committed to bringing stakeholders together nationally and encourage the broader prevention community to connect with us.

As we look forward to our new projects and welcome our new people to join the collaboration, I would like to pay tribute to the work of our Deputy Director, Associate Professor Sonia Wutzke, who died suddenly just before Christmas 2017.

Sonia was an integral part of the first five years of the Prevention Centre. She laid the groundwork by establishing a new way of working and devoting enormous energy and ability to engage people and to make things happen. She was our colleague, mentor, and above all, our friend.

Looking forward, we are committed to building on our mission of finding sustainable, evidence-based, whole of system solutions to the prevention of chronic disease. We are enthusiastic about the direction the next five years will take us.

The Australian Prevention Partnership Centre

Contact us

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The Australian Prevention Partnership Centre

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