

Population Health Research Strategy 2018–2022



Health

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A message from the Chief Health Officer



NSW Health is committed to supporting high quality research and evaluation to drive evidence-informed population health policies and programs. We recognise that sustained support for research is vital if NSW Health is to continue to improve the way we work and, ultimately, enhance population health outcomes and reduce health inequities in NSW.

This five-year Strategy builds on the 2011–2015 NSW Health Population Health Research Strategy: *Promoting the generation and effective use of population health research in NSW*. It represents a 'refresh' of the 2011–2015 Strategy, and provides an updated framework for the effective generation and use of population health research across NSW Health.

The Strategy identifies a range of actions that will enable us to build on our existing population health research strengths. NSW has a vibrant research environment, with a highly skilled workforce, well developed infrastructure, and a strong track record in attracting competitive grant funding in public health. It is important that NSW Health continues to leverage this success by investing in priority-driven population health research projects and infrastructure, and supporting the development of research capacity and capability. This will require a focus both on areas of traditional strength, such as data and analytics, and areas of emergence and innovation, such as bio-banking.

NSW Health recognises the importance of engendering a culture of collaboration to drive research success and accelerate policy and practice change. We are committed to developing and maintaining productive research partnerships, including with our health system colleagues, with the academic sector, across government and with other jurisdictions. Collaboration and co-production are particularly important for research that has the potential to improve health for Aboriginal people and other vulnerable groups, and reduce health inequities.

The initiatives outlined in the Strategy will ensure that population health research in NSW Health is high quality, is conducted ethically, addresses identified population health research priorities, informs policy and practice and hence improves the health of the population.

I would like to thank all those who contributed to the development of the Strategy, and I look forward to working with the staff of NSW Health on its implementation.

A handwritten signature in black ink that reads "K Chant". The signature is fluid and cursive, with a large initial "K" and a stylized "Chant".

Dr Kerry Chant PSM

Chief Health Officer and
Deputy Secretary Population and Public Health

1. Introduction

This Strategy builds on the 2011–2015 NSW Health Population Health Research Strategy: *Promoting the generation and effective use of population health research in NSW*, and provides a contemporary framework for NSW Health to effectively generate and use population health research. The Strategy complements a range of NSW Government initiatives and builds on NSW Health's commitment to support and harness research, evaluation and innovation with the aim of keeping people healthy.

Aim and objectives

The aim of this Strategy is to promote the generation and use of high quality, relevant research and evaluation across NSW Health to improve policy and program effectiveness, population health and health equity in NSW. The four main objectives are to:

1. Support research that is **relevant** to population health policy and practice in NSW
2. Improve the **quality** of population health research
3. Increase the **use** of research evidence in population health policies and practice
4. Strengthen population health research **capability** across NSW Health

Scope of the Strategy

This Strategy will support population health research and evaluation that is undertaken, commissioned, supported and/or used by NSW Health. The focus of the Strategy is specifically on actions the NSW Ministry of Health can undertake to support population health research at the State and local levels. Some actions may also be relevant for implementation by local population health services.

NSW Health makes a significant investment in supporting population health research and evaluation. This Strategy has been designed to ensure that available NSW Health resources for population health research are used more efficiently and collaboratively.

Definition of population health research

Population health research can be defined as the investigation and analysis of factors that influence the health status of groups or whole populations, as well as the testing and evaluation of policies and interventions to improve population health outcomes.¹ In particular, this Strategy supports research related to the promotion of health and wellbeing, prevention of disease, intervention early in the life course and/or early in the development of a disease or condition. This includes research relevant to population-level programs as well as health promotion and (secondary and tertiary) prevention delivered through primary and acute healthcare settings.

Population health research evidence takes a variety of forms and a range of evidence is required for comprehensive policy and program development. Different types of research can be described in terms of 'stages of evidence-building'. For instance, surveillance and disease burden data can help to define a population health issue; formative evaluation provides evidence for solution generation; research on the effectiveness of interventions (at the innovation testing, intervention demonstration, replication and dissemination stages) and on the cost effectiveness of interventions can guide major decisions about program investment; and program monitoring affords information about program sustainability.^{2,3}

For the purpose of this Strategy, research and evaluation are considered as belonging to the same continuum. It is acknowledged that while research and evaluation may ask different types of questions both involve the rigorous gathering of empirical evidence, are governed by similar principles and use many of the same tools and methods. Throughout the Strategy, the term 'research' is used to cover both research and evaluation.

The Strategy document

This Strategy was developed under the auspices of an Advisory Group (Appendix A), through a process that included review of achievements against the 2011–2015 Strategy, review of relevant literature⁴ including similar strategic documents in other jurisdictions and countries, and stakeholder consultations. An overview of the resulting Strategy is presented in Figure 1. Indicative actions are included throughout the Strategy and summarised in Appendix B. While the indicative actions represent the types of activities that may be undertaken, these are not exhaustive: it is anticipated that a broad range of work will be undertaken over the term of the Strategy that will contribute toward achieving the strategies. In addition, it is noted that although several of the indicative actions are relevant to more than one sub-strategy, each individual action is listed only once.

FIGURE 1. The Strategy at a glance



2. Background

If the health of the people of NSW is to be improved and inequities in health are to be reduced, the capacity of research to contribute to these aims must be maximised. In an environment of competing demands for limited resources, it is especially important that health policies and programs should be informed by the best research evidence.⁵

Population health research is of particular importance for improving the health of Aboriginal people, given the significant health disparities between Aboriginal and non-Aboriginal people in NSW. Maximising the contribution of research and evaluation to Aboriginal health will require ensuring the needs and interests of Aboriginal people are embedded into the planning and conduct of all research supported by NSW Health in line with the *NSW Aboriginal Health Impact Statement*,⁶ supporting ethical and culturally sensitive research that is specific to Aboriginal people, and building workforce capability to undertake research in Aboriginal health.⁷ Research that evaluates existing, well-established community programs and innovative new interventions will be especially valuable.

Alongside the health outcome benefits of population health research, there are economic benefits related to increased productivity and reduced health and societal costs, the influx of research funds to the State, and associated employment. An effective research commitment also has a systemic benefit for the operation of population health programs and services as it 'changes the philosophy and ethic that underpin them and becomes a key determinant in fostering best practice'.⁸

Fostering a productive population health research system also builds the capacity and capability of those who conduct the research and the organisations within which they work. The potential benefits for individuals engaging in research include contributing to the public good, increased research skills, career progression and broadening of employment opportunities.

As a learning organisation, the NSW Ministry of Health identifies the conduct of research and the use of research evidence in the development of its policies and programs as important organisational values.

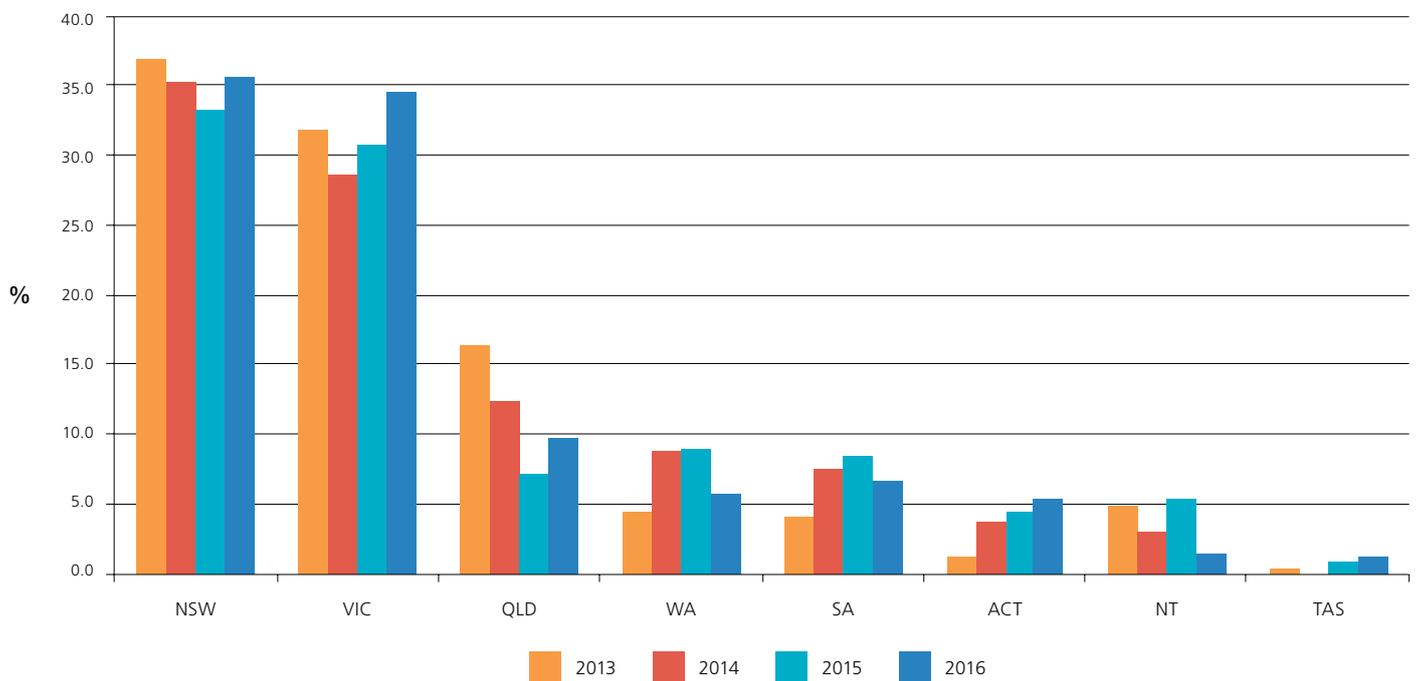
The context for population health research in NSW

NSW is well placed to support a vibrant population health research community within a competitive research environment. NSW has the largest population in Australia⁹ and high quality health and education systems, and is home to world class health and medical research expertise and infrastructure located in government, universities, independent research institutes, hospitals and local health settings.

The NSW Government has demonstrated a strong commitment to health and medical research in the State through ongoing investment in research infrastructure, technology and device development, researcher support and grant funding for research projects. The NSW Government is also a strong proponent of evaluation as a means to assess the effectiveness, efficiency, appropriateness and sustainability of policies and programs. It is expected that both new and existing programs are periodically evaluated in line with the *NSW Government Program Evaluation Guidelines*¹⁰ and it is a requirement that annual evaluation schedules are prepared detailing the State-level programs to be evaluated each year.¹¹ It is recommended that evaluation planning is integrated into the policy/program planning and development phases,¹⁰ and that evaluation findings are publicly released.¹¹

In the field of population health, NSW hosts several internationally recognised centres of excellence and consistently attracts the largest proportion of National Health and Medical Research Council (NHMRC) funding in the broad research area of public health (Figure 2).¹² In 2016, the proportion of NHMRC competitive grant funding awarded to NSW in the broad research area of public health (36%) exceeded the proportion awarded to NSW for all competitive grants (29%) and, from a per capita perspective, was greater than the proportion of the Australian population residing in NSW in 2016 (32%). Continued investment in, and support for, population health research in NSW to build on our competitive advantage is of paramount importance.

FIGURE 2. Proportion of NHMRC competitive grant funding awarded in the broad research area of public health, by State, 2013–2016



The NSW Ministry of Health funds, commissions and undertakes population health research to inform its policies and programs. The Ministry's population health research portfolio comprises a range of policy focuses and different types of investment (Figure 3). These include, for example, research assets that enable the efficient analysis of data from large population samples, centres funded to undertake defined research programs in areas of priority for NSW Health, and collaborative cross-jurisdictional research through partnership initiatives such as the Australian Prevention Partnership Centre. There is a strong culture of population health research and evaluation as indicated by the number of projects undertaken and journal papers published by staff. This Strategy identifies a range of actions aimed at leveraging and enhancing these existing investments and approaches.

Population health research is also conducted and supported by several of the NSW Health Pillar organisations. For example, the Cancer Institute NSW conducts evaluations of its state-wide prevention campaigns, and the Health Education and Training Institute (HETI) administers a Rural Research Capacity Building Program which supports rural-based NSW Health staff to participate in research training and undertake a locally-relevant research project. At the local level, investment in and conduct of population health research varies across the State, with some local services contributing substantially to the evidence base for population health practice (see Section 4).

FIGURE 3. NSW Ministry of Health investments in population health research



BBV=blood borne viruses, STI=sexually transmissible infections

Principles for population health research

NSW Health supports a consistent approach to the generation and use of population health research evidence, guided by the following principles (Box 1).

Box 1. Principles underpinning population health research in NSW Health

NSW Health will undertake, support and commission population health research that:

- is relevant to current NSW population health priorities
- can be used to inform policy and practice and, in particular, addresses evidence gaps for policy and practice
- will make a difference to health outcomes, particularly where differences in health status are inequitable
- is rigorous, of high quality and uses methods appropriate for its purpose (including quantitative, qualitative and/or mixed methods)
- incorporates effective governance mechanisms
- is conducted in an ethical manner
- considers the broad social and economic determinants of health, and focuses on priority population subgroups, including Aboriginal, disadvantaged, and culturally and linguistically diverse (CALD) communities
- embeds consideration of the needs and interests of Aboriginal people in its planning and conduct
- where the research is specific to Aboriginal people:
 - demonstrates net benefit for Aboriginal people and communities
 - embeds Aboriginal community control over all aspects of the research to ensure participants, and those directly affected, are fully informed about and agree with the purpose and conduct of the research
 - is planned and conducted in a culturally sensitive way
 - involves feedback of findings to the community in an appropriate way, and
 - where possible, employs Aboriginal people
- where appropriate, fosters research co-production and partnerships with policy makers, local health service practitioners, and those likely to be affected by the research
- recognises the importance of generating knowledge from practice
- considers cost, dose, reach, transferability, scalability and sustainability
- advances the understanding of how local context impacts on the effect and sustainability of interventions
- builds research and evaluation capability for the future
- advances the science of population health research

3. Strategies for population health research

Strategy 1. Facilitate the generation of high quality, relevant population health research

Evidence relevant to population health practice is drawn from a range of disciplines and uses a variety of methodological approaches: quantitative, qualitative and mixed methods. It includes primary data collection and analysis, analysis of existing data, and systematic reviews of research including meta-analyses. High quality research uses a design that is appropriate for the issue being studied and is conducted in a rigorous, systematic and ethical manner.

Strategy 1.1. Focus on NSW Health priorities

NSW Health state-wide priorities require strategic programs of research to support the design and delivery of effective interventions and to monitor and assess progress against targets.

More specific research priorities, which can define population groups, settings, research types and issues of importance, may be developed within policy areas. The identification, dissemination and periodic updating of research priorities has the potential to:

- foster links and partnerships within NSW Health and with agencies external to NSW Health including academic institutions
- encourage potential partners to align their research with the priorities
- allow potential applicants to tailor applications when seeking NSW Health funding
- inform those seeking NSW Health involvement in partnership grants of areas of interest
- assist policy areas in responding to requests for research funding.

Research priority setting processes may also be conducted within local population health services. Such processes should include consideration of relevant state-wide and policy area priorities, including whether and/or how these are applicable in the local context, and identification of other priorities that are locally relevant.

Using a systematic, explicit and transparent process to set research priorities helps to ensure that funded research is aligned with critical gaps in the evidence and the needs of decision makers, has the greatest potential public health benefit, and uses limited resources efficiently and equitably.^{13–15}

Indicative actions 2018–2022

- 1.1.1 Fund and support strategic research and evaluation programs focusing on Premier's and other State-level priorities
- 1.1.2 Fund priority research centres
- 1.1.3 Assist policy areas to undertake research priority setting processes
- 1.1.4 Communicate research priorities identified by policy areas to relevant stakeholders within the NSW Government, local population health services and the research community
- 1.1.5 Work with NSW Health research funders to ensure a continued focus on, and alignment of investment with, research priorities for NSW Health
- 1.1.6 Require recipients of NSW Health research funding to demonstrate how their research is consistent with research priorities identified by policy areas

Strategy 1.2. Fund and commission research

NSW Health makes a significant investment in population health. It is essential that population health policies and programs are developed and implemented using the best available evidence, and that their impact is assessed through appropriate evaluation and monitoring. This will help to inform decisions about the continuation or scale-up of effective programs, along with disinvestment decisions.

The Ministry's population health research investments (Figure 3) range from priority research centres to targeted research and evaluation projects funded and commissioned through the relevant policy area. To enhance these investments, this Strategy supports an increased focus on research that examines the implementation and/or scale-up of interventions and tests their effectiveness under real world conditions. Much population health research is descriptive or analytic, focusing on describing health problems and associated factors. While such research is important, there is a need for more knowledge about 'solutions', including policies and programs that have the potential to prevent ill-health and improve health at the population level, and redress health inequities.^{16,17} Innovative approaches such as dynamic simulation modelling, in which a range of intervention and policy options are analysed and leverage points are identified, are supported as promising mechanisms for determining where to focus action and with what intensity.¹⁸

Indicative actions 2018–2022

- 1.2.1 Invest in a range of different types of research as part of an integrated, coherent population health research portfolio
- 1.2.2 Support the administration of schemes that fund population health research projects in NSW, including the Translational Research Grants Scheme
- 1.2.3 Fund evaluations of state-wide policies and programs
- 1.2.4 Commission targeted research and evaluation projects
- 1.2.5 Support intervention research that assesses implementation, effectiveness and cost-effectiveness, particularly where the research focus is the health and wellbeing of Aboriginal people or other vulnerable populations
- 1.2.6 Support the application of promising new and emerging methods for policy-relevant research

Strategy 1.3. Plan and undertake research

Research and evaluation that is undertaken by population health staff can help build evidence of direct relevance to policies and programs and foster the use of this evidence. Such research is most commonly undertaken internally for small-scale projects or where specialised expertise (e.g. in Aboriginal health research or linked data analysis) is required.

At the local level, research and evaluation capacity and capability vary greatly across population health services in NSW. Where there has been considerable research activity in local population health services over time, there has been a strong return on investment through success in attracting additional research funding, improved service delivery and better health outcomes. Involvement of local population health services in research should be encouraged to help build evidence of direct relevance to practice, build research capability, enhance job satisfaction and advancement and reduce the time from evidence generation to practice implementation. Research conducted in collaboration with other services or external partners has many benefits, particularly for smaller population health services. Such collaborations may assist with attainment of sufficient sample size to ensure reliable results and the appropriate mix of research skills required for rigorous, high quality research.

The NHMRC National Statement on Ethical Conduct in Human Research sets out requirements for the ethical design, conduct and dissemination of results of human research.¹⁹ Conditions related to the disclosure of unit record data from data collections held by the NSW Ministry of Health for the purpose of research are outlined in the [NSW Health Policy Directive PD2015_037](#).²⁰ Resources relevant to requirements for ethical review are outlined in Box 2.

Indicative actions 2018–2022

- 1.3.1 Promote and support the application of the NSW Aboriginal Health Impact Statement to ensure the needs and interests of Aboriginal people are embedded in the planning and conduct of research supported by NSW Health
- 1.3.2 Conduct flagship research and evaluation projects
- 1.3.3 For small-scale evaluations, or where specialised expertise is required (e.g. biostatistics, Aboriginal health research), undertake all or part of research or evaluation projects
- 1.3.4 Provide technical advice and/or structured input into the design of State-level strategic research projects, evaluation frameworks and policy and program evaluations
- 1.3.5 Monitor and report on the health status of the NSW population

Box 2: Ethical review requirements

The NSW Health Guideline [GL2007_020 Human Research Ethics Committees: Quality Improvement & Ethical Review: A Practice Guide for NSW](#) provides a checklist to assist in identifying potential ethical risks.²¹ Where the need for full ethical review is unclear, the NHMRC document [Ethical Considerations in Quality Assurance and Evaluation Activities](#) provides guidance on relevant ethical issues and identifies triggers for ethical review.²² If research is determined to involve more than a low level of risk, full review by a human research ethics committee (HREC) is required.¹⁹ [NSW Health HRECs](#) provide an expedited review process for certain research projects that involve low or negligible risk to participants.²³

Specific ethical review requirements:

- Research utilising and/or linking routinely collected health (and other) data, including data collections owned or managed by the NSW Ministry of Health or

the Cancer Institute NSW, must be reviewed by the NSW Population and Health Services Research Ethics Committee: see [Guidelines for submission to the NSW Population and Health Services Research Ethics Committee](#)²⁴

- Research that may affect the health and wellbeing of Aboriginal people and/or communities must be reviewed by the Aboriginal Health & Medical Research Council of NSW (AH&MRC) Ethics Committee: see [Values and Ethics: Guidelines for Ethical Conduct in Aboriginal and Torres Strait Islander Health Research](#)²⁵ and [AH&MRC Guidelines for Research into Aboriginal Health: Key Principles](#)²⁶
- Research involving persons in custody and/or staff of the Justice Health and Forensic Mental Health Network (JH&FMHN) must be reviewed by the JH&FMHN Human Research Ethics Committee and the AH&MRC Ethics Committee.

Strategy 2. Maximise the use of research evidence to improve population health

Policy and program development is subject to a range of influences including competing interests, the pressure to act quickly and public values.²⁷ In times of limited resources and competing demands, NSW Health will invest in those policies and programs that are most likely to deliver the desired outcomes.

NSW Health needs to know what the challenges will be in the future, what programs are most likely to meet those challenges effectively, and what will represent the best return on investment. An essential part of answering these questions is being able to access and understand the latest research evidence.

It is vital that any new population health research results in practical outputs for policy makers and practitioners and that the use of currently held data and knowledge is maximised. Data relevant to population health come not only from the population health sector, but also from areas such as transport, education, housing and employment, through government, academic and non-government organisations. Knowledge gained from intersectoral research must be transferred to the government departments and other agencies responsible for implementing relevant policies and programs.

Strategy 2.1. Facilitate synthesis of and access to research evidence

Publication of research and evaluation results is one approach to fostering the uptake of evidence in policy and programs. To ensure that population health research that is publicly funded and/or conducted by State and local population health services informs practice, the publication of the results in reports, peer-reviewed journals and other relevant formats is encouraged. Publication of findings from government-funded research—including negative, null and inconclusive results—is also important as a means of enhancing accountability and transparency, and reducing duplication.¹⁰

Publication by itself is not the only way to ensure evidence is disseminated. Policy makers and practitioners often need to access the results of research in an easy-to-understand format within a short timeframe. Reviews of evidence select research studies according to their quality and relevance and synthesise the results. Specialist brokerage services can assist decision makers to commission rapid evidence reviews to answer targeted policy- or practice-relevant questions.²⁸ Evidence reviews that include summaries tailored to the needs of decision makers (e.g. key messages followed by a brief summary and full report) are particularly useful.²⁹

Indicative actions 2018–2022

- 2.1.1 Fund and support priority research centres to produce and disseminate reviews of evidence relevant to policy and practice
- 2.1.2 Facilitate the commissioning of targeted reviews, e.g. through the Sax Institute's Evidence Check program
- 2.1.3 Publicise relevant evidence reviews and evaluation reports, including lessons learned
- 2.1.4 Actively promote mechanisms to enable access to research findings and syntheses, including online repositories of research reviews
- 2.1.5 Encourage publication of peer-reviewed papers and policy briefs by NSW Health staff on population health research

Strategy 2.2. Develop policy and practice environments that value research

Decision-makers and practitioners must have the incentive and ability to understand and use research evidence to maximise the influence of research on policy and practice. A supportive organisational culture that values research evidence, as well as training, tools and resources to assist decision-makers in understanding, planning and using research (Box 3), are imperative.³⁰

Increasing opportunities for exchange between researchers and policy makers and practitioners can help to build common understanding and foster effective joint initiatives. Facilitated researcher-decision maker engagement through seminars and roundtables can broaden participants' knowledge and stimulate their thinking about a topic.³¹

Box 3: Resources to support the planning, design, commissioning and use of population health research

- *Developing and Using Program Logic: A Guide*³² which supports the development of program logic models and their use in informing population health program planning, implementation and evaluation
- *Commissioning Evaluation Services: A Guide*³³ which promotes a proactive, planned and structured approach to commissioning evaluations, including information on when and how to commission an evaluation and how to make the most of the results
- *Commissioning Economic Evaluations: A Guide*³⁴ which supports the commissioning of economic evaluations, particularly in population health
- *Increasing the scale of population health interventions: A Guide*³⁵ which supports the broader implementation of policy or program interventions that have been found to be effective
- *Translational Research Framework*³ which supports practitioner researchers in refining research questions and identifying feasible research methods to answer these questions
- *Translational Research Framework: Source Book*,³⁶ a companion to the Framework, which provides additional information about research design, ethical considerations, and costing and economic methods

Indicative actions 2018–2022

- 2.2.1 Provide leadership and advocacy to promote the value of population health research and its use in policies and programs, including through contributing to relevant dialogues and discussions, and making submissions regarding relevant policies and strategic documents
- 2.2.2 Actively promote the conduct of high quality research and evaluation of policies and programs
- 2.2.3 Support the conduct of knowledge translation research to better understand the value and effectiveness of strategies to facilitate the use of research in policy and practice
- 2.2.4 Encourage staff to engage in research by enabling skill development, supporting formal postgraduate study, and mentoring staff to design and conduct research and publish and present research findings
- 2.2.5 Develop and provide resources and training to support staff to plan, design, commission, appraise and use policy-relevant research and evaluation, including economic evaluation
- 2.2.6 Support staff participation in training and development opportunities offered through external organisations
- 2.2.7 Maximise awareness of population health research and assets supported by NSW Health by regularly reporting on research activity with an emphasis on research outputs and outcomes
- 2.2.8 Fund and support research centres to hold forums to facilitate exchange between researchers and policy makers
- 2.2.9 Take advantage of opportunities to locally host research seminars and exchanges
- 2.2.10 Provide regular professional development opportunities for policy makers and practitioners, including Bug Breakfast and the Epidemiology Special Interest Group (Epi-SIG)

Strategy 2.3. Foster research environments that promote the use of research evidence

The influence that research and evaluation evidence will have on policy and practice and on the health of the population should be considered from the outset. This Strategy supports an integrated knowledge translation approach where initiatives aimed at promoting the use of research findings are woven into the research process.³⁷ This involves ongoing exchange and collaboration between researchers and research users during the research process, including shaping the research questions, interpreting the findings, and disseminating and implementing the research results. Alongside this integrated approach, end of research dissemination activities that tailor the message and format to specific audiences are also encouraged.

Indicative actions 2018–2022

- 2.3.1 Support an integrated knowledge translation approach to ensure activities aimed at promoting the use of research findings are included throughout the research process
- 2.3.2 Facilitate the incorporation of strategies to encourage the use of research findings in policy and practice in research schemes and projects supported by NSW Health
- 2.3.3 Require funded research centres to engage with policy makers and practitioners through research planning and dissemination processes
- 2.3.4 Create opportunities for reflection on research findings and the planning of further actions
- 2.3.5 Encourage conjoint university appointments for population health staff
- 2.3.6 Enhance the capability of researchers to engage in knowledge translation
- 2.3.7 Actively promote case studies demonstrating the use of research and evaluation evidence to inform population health policy and practice, including to address health inequities

Strategy 3. Build population health research capability

A key enabler for the generation and use of high quality, relevant population health research and evaluation is the enhancement of capability across the NSW Health system. In this Strategy, capability includes: improving the capacity and ability of the workforce to commission, undertake and use research and evaluation; the development and maintenance of appropriate research infrastructure; and the promotion of relevant collaborations and partnerships.

Strategy 3.1. Build skills for population health research

Quality research requires the involvement of researchers with appropriate skills, either in the conduct of the research or as supervisors of less experienced researchers. Building workforce capability can be achieved through direct means, such as the provision of training, mentoring, fellowship or scholarship programs, or through less direct means of skills transfer such as involvement in collaborative projects (particularly with academic partners), state-wide initiatives or professional networks.

Increased capability to undertake research and evaluation is required at different levels and for different purposes within population health services at the State and local level.³⁸ For instance, there is an increasing need to ensure rigorous application of appropriate research methodologies to evaluate complex interventions. In addition, there are specific issues regarding research capacity and capability in rural areas that relate to smaller staff numbers, greater distances from universities and tertiary public teaching hospitals, and fewer research institutes (and therefore less direct access to mentoring and partnerships), and to more limited access to training opportunities.

Indicative actions 2018–2022

- 3.1.1 Lead NSW Health population health training programs: Aboriginal Population Health Training Initiative, Biostatistics Training Program and Public Health Training Program
- 3.1.2 Support the Early-Mid Career Fellowship and PhD Scholarship schemes to build the career paths of population health researchers and develop skills in priority areas
- 3.1.3 Support Prevention Research Support Program recipients to build the prevention research capability of NSW Health staff
- 3.1.4 Support a dual learning partnership between Aboriginal people and the population health workforce by:
 - Building the research leadership capacity and capability of Aboriginal people to conduct research, and
 - Building the capacity and capability of the population health workforce to undertake research and evaluation in Aboriginal health, through active engagement and involvement from the Aboriginal community
- 3.1.5 Support the development of population health research skills in areas of priority including implementation science, evaluation (particularly of complex interventions), epidemiology, bio-informatics, health economics and biostatistics; particularly at the local level
- 3.1.6 Improve the use of technologies to enable access to research exchanges and training opportunities, including online training to support practice guides and research frameworks
- 3.1.7 Support short-term staff exchange or secondment opportunities across policy/practice and research environments, where there is mutual benefit
- 3.1.8 Administer an evaluation e-group to support the development of program evaluation capability across the Ministry, Pillars and local health districts

Strategy 3.2. Develop and maintain research infrastructure

Research infrastructure for population health includes both the essential institutional resources and equipment underpinning research that are not covered by research grants, and research assets (such as data linkage systems, biobanking facilities and large scale cohort studies) that provide opportunities for many researchers to conduct analyses on large population samples at low cost.

Through the Prevention Research Support Program, NSW Health provides funding to established NSW research organisations conducting prevention research to support research infrastructure, capability building, and knowledge translation strategies. This Strategy supports a continuation of this Program alongside other efforts to enhance infrastructure for population health research. These efforts include a specific focus on building on NSW's existing strengths in data and analytics and hence facilitating access to and sharing of data, and a commitment to areas of innovation such as biobanking.

The NSW Government supports open information and big data. The *eHealth Strategy for NSW Health 2016–2026* includes an explicit focus on improving preventive health analytics capabilities that support population health and translational research.³⁹ In support of this focus, the *NSW Health Analytics Framework* provides an actionable plan to drive broader and more sophisticated analytics use to better support decision making and analysis across the NSW health system.⁴⁰

NSW has excellent infrastructure and expertise to maximise opportunities for data-driven research to advance population health knowledge. The Centre for Health Record Linkage (CHeReL) is an internationally recognised and rapidly growing data linkage centre. Part of Australia's first national data linkage network, the CHeReL enables the release of more than 500 million records each year. The core linkage system contains data on 12 million people and is regularly linked to other datasets and across sectors, allowing health researchers to access justice, education, community services and transport data. Other NSW-based infrastructure that enables data-driven research and evaluation include: the Secure Unified Research Environment (SURE), a purpose-built remote-access data research laboratory for analysing routinely collected data; the 45 and Up Study, the largest cohort study undertaken in Australia; and SAPHaRI, a data warehousing and access facility optimised for sophisticated statistical analysis of administrative and survey data by NSW Health staff.

The establishment of the NSW Health Statewide Biobank—Australia's first large-scale automated storage facility for biological samples—has also positioned NSW as a leader in health research using bio-specimens. This world-class asset will include selected population and disease based collections and will enable research into the prevention, diagnosis and treatment of disease.

Indicative actions 2018–2022

- 3.2.1 Host and provide direct infrastructure funding for the Centre for Health Record Linkage
- 3.2.2 Support the establishment of the NSW Health Statewide Biobank
- 3.2.3 Fund and administer SAPHaRI
- 3.2.4 Undertake a program of work to standardise and document major population health datasets
- 3.2.5 Improve policies and processes relating to data quality, access, sharing and governance
- 3.2.6 Provide support for other NSW research assets such as the 45 and Up Study and SURE (via support to the Sax Institute)
- 3.2.7 Administer the Prevention Research Support Program
- 3.2.8 Support a focus on cross-jurisdictional research with linked data to better understand the causal determinants of population health and health needs, and to assess the impacts of health policy and programs

Strategy 3.3. Foster partnerships for collaborative research

Effective partnerships for population health research underpin many of the strategies and actions in this document. Long-term programmatic engagement between researchers and policy makers and practitioners has the greatest potential for enhancing the quality and relevance of population health research in NSW. The formation of geographically defined research hubs—cooperative organisations that bring together local health districts and research enterprises such as independent institutes and universities—is enabling sharing of facilities and ideas to stimulate new partnership research in NSW. Partnerships are particularly important for smaller population health services to promote skills development and increase success in attracting research funding. It is anticipated that the establishment of a NSW regional strategic research alliance will facilitate the development of partnerships between rural services and academics and provide ongoing opportunity and support for research and capacity building across the State.⁴¹

There is evidence that interaction between researchers, policy makers and practitioners is likely to increase the use of research evidence.⁴² In particular co-production of research (where researchers and decision makers work together from the outset to frame relevant research questions, create appropriate research designs, and commit to implementing the research and its findings in partnership) is likely to produce more policy-relevant and practice-relevant research, and have a greater impact on policy.⁴³ Involving policy makers in research teams can benefit both policy and academic partners through increased links, enhanced understanding of research findings, and improved knowledge and skills.^{44,45}

Research funders are in a unique position to influence activities aimed at promoting research use. Funding structures involving co-sponsorship have the potential to promote partnerships between policy makers and researchers and to increase motivation for linkage and exchange more generally. In Australia, grant schemes that require both researcher and practitioner involvement include NHMRC Partnership Centres, NHMRC Partnership Projects and ARC Linkage Projects. The Australian Government Medical Research Future Fund also emphasises the importance of collaborative research involving academics, those involved in health service delivery and industry. Locally, the NSW Government plays an important role in funding and supporting health and medical research that incorporates mechanisms to facilitate the use of research findings in policies and programs.

Joint research initiatives with the NSW Ministry of Health are most successful when all partners are involved early in the development of the proposal and when partner contributions are clearly defined. Guidance for developing partnership grants are included in Box 4 for the information of organisations interested in working with the Ministry in this regard.

A particular area of need is improved communication and collaboration between NSW Health and universities to support the alignment of research agendas and capacities. Enhanced dialogue between academics and government about the benefits of involvement in policy-relevant research should underpin the development of such partnerships. Approaches may include participatory workshops to inform the development of policy-relevant research agendas, or facilitated as part of research priority setting processes.

Another key area of work is to foster collaboration on population health research initiatives across the NSW Ministry of Health, with NSW Health Pillar agencies, across government at the State level, and across jurisdictions. Collaborative research and action across portfolios, and at the national and global levels, is particularly important for addressing the social, environmental and economic determinants of health.

The importance of involving consumers and communities (particularly priority population subgroups) in research is also recognised. Engaging consumers in the design and conduct of research is likely to enhance the relevance of the research and improve participation rates, and may facilitate the dissemination and uptake of findings.⁴⁶

Indicative actions 2018–2022

- 3.3.1 Support the Sax Institute which, as part of its core business, brings together decision makers and researchers to collaborate and exchange ideas
- 3.3.2 Support the Australian Prevention Partnership Centre to conduct research into building an effective, efficient and equitable system to prevent lifestyle-related chronic disease
- 3.3.3 Encourage greater collaboration with external organisations on NHMRC Partnership Grants, ARC Linkage Grants, and other partnership grant opportunities
- 3.3.4 Collaborate on discrete practitioner- or researcher-initiated partnership projects that are of interest and relevance to NSW Health
- 3.3.5 Fund research that encourages partnerships, including with local population health services, through initiatives such as the Translational Research Grants Scheme
- 3.3.6 Promote co-production of research where decision makers are meaningfully involved from an early stage in developing research questions, undertaking the research, interpreting the findings, and disseminating and using the results
- 3.3.7 Maintain the NSW Ministry of Health Population and Public Health Research Group to support internal communication and collaboration about research funding and related issues
- 3.3.8 Coordinate the health cluster Evaluation Expert Reference Group to enable a strategic, collaborative approach to achieving whole-of-government program evaluation requirements
- 3.3.9 Provide NSW Ministry of Health representation on the NSW Government Evaluation Strategy Working Group
- 3.3.10 Encourage the involvement of consumers and communities that are likely to be affected by research, particularly priority population subgroups, in the planning and conduct of research

Box 4: What should researchers consider when approaching the Ministry to be a research grant partner?

- How does the intended research grant topic align with the key priorities of the Ministry?
- How will the evidence generated by the research impact upon health policy or programs?
- Could the intervention under study feasibly be implemented in the NSW Health system, and is it scalable across the system?
- Have you approached the potential research grant partner(s) within the Ministry, before developing the proposal, to ensure they have ample opportunity to contribute to the proposal?
- Have you clarified what you expect of the Ministry as a research grant partner, for example: financial and/or in-kind contributions; access to program, administrative or survey data; epidemiological or biostatistical expertise; policy expertise?
- Have policy timeframes been considered? Ongoing reporting of findings to the Ministry during the research process may help to inform real-time policy development.
- Will the research strengthen existing links with the Ministry, outside of the grant proposal, or establish a new relationship with the Ministry? Ongoing links with the Ministry will enhance this and future proposals.
- Beyond the publication of results, have you considered ways to facilitate the translation of the research evidence into policy and practice?

4. Supporting research and evaluation in local population health services

The NSW Ministry of Health has the role of system manager in relation to the NSW public health system, which operates public hospitals and provides community health services through a network of local health districts, specialty networks and other organisations. As system manager, the Ministry purchases services—including population health services—and local health districts are responsible and accountable for service delivery.

The Ministry also has a role in strengthening and supporting population health research at the local level. It is intended that this Strategy will provide leverage for local population health services. As a first step this may entail, for example, the development of local population health research plans that draw on the strategies and actions included in this document and align with existing local health district-level research strategies, where these exist.

At the local level, investment in and conduct of population health research varies across the State, with some local services contributing substantially to the evidence base for population health practice. Given the potential for research-engaged population health services to contribute to improved policy and program effectiveness and population health outcomes, and to reduce health inequity, it is expected that local population health services will both undertake research and implement research findings in practice as part of a strong culture of evidence-informed action; partnerships between population health services and researchers are particularly important in this regard. Examples of investment and management strategies that can be implemented in local population health services in NSW to facilitate research engagement include:

- Undertake a strategic process to map research needs, activity and capability across population health services
- Develop and implement a population health research strategic plan
- Establish formal collaborations between population health services and population health research groups to enable the co-production of high quality applied research that guides the development of locally-relevant, evidence based policies and practice
- Commit to being a partner and providing funding support on partnership, linkage and infrastructure grants
- Apply for funding to conduct priority research projects, including through the Translational Research Grants Scheme, in partnership with other local population health services or other partners where appropriate
- Secure executive sponsorship from an appropriate senior service manager to support the conduct of discrete research projects and the uptake of findings from research
- Initiate or facilitate research innovation or evaluation of service improvement initiatives as a platform for engagement with researchers
- Provide in-kind resources to support service improvement research
- Employ research-active staff as leaders or members of population health service delivery teams
- Designate quarantined time for population health service staff to conduct research
- Recruit or part-fund postdoctoral research fellows or PhD students, or provide top-up funding for funded fellowships or PhD scholarships
- Enable and support population health service staff to complete doctoral level studies
- Support rurally located population health staff to apply for and participate in the HETI Rural Research Capacity Building Program
- Identify opportunities for building the research capability of staff, including formal training activities and informal mentoring, and support the participation of staff in these opportunities
- Ensure population health service staff participate as investigators on relevant research grant applications
- Ensure population health service staff participate as authors on publications from research in which they have been involved

5. Implementation and monitoring

Primary governance for this Strategy and leadership for its implementation lies with the NSW Ministry of Health with the Deputy Secretary, Population and Public Health and Chief Health Officer as the executive sponsor. The importance of working with key stakeholders to implement the Strategy is recognised. These include:

- all Divisions within the NSW Ministry of Health
- NSW population health services at the local level
- NSW Health Pillar organisations
- relevant NSW population health networks such as the Health Protection Leadership Team, Infectious Diseases network, Environmental Health Network, and Public Health Informatics & Epidemiology Network
- universities that partner with NSW Health
- NSW research institutes
- other NSW government departments
- government departments in other jurisdictions
- non-government organisations
- international, national and interstate funding, academic and research organisations
- those likely to be affected by the research

These groups will be engaged in the implementation of the Strategy as appropriate.

A mid-term review will be conducted to track performance and inform implementation in the second part of the term of the Strategy, including refinement of the indicative actions. A final review will be conducted at the conclusion of the term of the Strategy to assess progress over the five year period.

High level indicators, such as the proportion of successful applications to NSW Health and NHMRC funding schemes in the broad area of population health, will provide an overall assessment of progress against the Strategy.

Information will also be collected against key indicators for each sub-strategy through a biennial survey of population health research that is supported by the Ministry. These indicators may include, for example:

- Number and type of research activities supported in relation to research priorities identified within policy areas (1.1: *Focus on NSW Health priorities*)
- Number of peer-reviewed journal and other publications (2.1: *Facilitate synthesis of and access to research evidence*)
- Proportion of commissioned research projects in which strategies are in place to encourage the use of research findings in policy and practice (2.3 *Foster research environments that promote the use of research evidence*)
- Number of and income from successful competitive partnership grants (3.3: *Foster partnerships for collaborative research*)

These data will be supplemented by information on activity that has occurred in relation to the indicative actions, and any other relevant actions not listed in the Strategy, drawn from document reviews and informal interviews.

A dynamic companion document will showcase relevant case studies of research and translation success.

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Appendix A: Acknowledgements

This document was developed under the guidance of the NSW Population Health Research Strategy Advisory Group, comprising:

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Appendix B: Indicative actions

Strategy 1. Facilitate the generation of high quality, relevant population health research

<i>Strategy 1.1. Focus on NSW Health priorities</i>	<i>Strategy 1.2. Fund and commission research</i>	<i>Strategy 1.3. Plan and undertake research</i>
1.1.1 Fund and support strategic research and evaluation programs focusing on Premier's and other State-level priorities	1.2.1 Invest in a range of different types of research as part of an integrated, coherent population health research portfolio	1.3.1 Promote and support the application of the NSW Aboriginal Health Impact Statement to ensure the needs and interests of Aboriginal people are embedded in the planning and conduct of research supported by NSW Health
1.1.2 Fund priority research centres	1.2.2 Support the administration of schemes that fund population health research projects in NSW, including the Translational Research Grants Scheme	1.3.2 Conduct flagship research and evaluation projects
1.1.3 Assist policy areas to undertake research priority setting processes	1.2.3 Fund evaluations of state-wide policies and programs	1.3.3 For small-scale evaluations, or where specialised expertise is required (e.g. biostatistics, Aboriginal health research), undertake all or part of research or evaluation projects
1.1.4 Communicate research priorities identified by policy areas to relevant stakeholders within the NSW Government, local population health services and the research community	1.2.4 Commission targeted research and evaluation projects	1.3.4 Provide technical advice and/or structured input into the design of State-level strategic research projects, evaluation frameworks and policy and program evaluations
1.1.5 Work with NSW Health research funders to ensure a continued focus on, and alignment of investment with, research priorities for NSW Health	1.2.5 Support intervention research that assesses implementation, effectiveness and cost-effectiveness, particularly where the research focus is the health and wellbeing of Aboriginal people or other vulnerable populations	1.3.5 Monitor and report on the health status of the NSW population
1.1.6 Require recipients of NSW Health research funding to demonstrate how their research is consistent with research priorities identified by policy areas	1.2.6 Support the application of promising new and emerging methods for policy-relevant research	

Strategy 2. Maximise the use of research evidence to improve population health

<i>Strategy 2.1. Facilitate synthesis of and access to research evidence</i>	<i>Strategy 2.2. Develop policy and practice environments that value research</i>	<i>Strategy 2.3. Foster research environments that promote the use of research evidence</i>
<p>2.1.1 Fund and support priority research centres to produce and disseminate reviews of evidence relevant to policy and practice</p> <p>2.1.2 Facilitate the commissioning of targeted reviews, e.g. through the Sax Institute's Evidence Check program</p> <p>2.1.3 Publicise relevant evidence reviews and evaluation reports, including lessons learned</p> <p>2.1.4 Actively promote mechanisms to enable access to research findings and syntheses, including online repositories of research reviews</p> <p>2.1.5 Encourage publication of peer-reviewed papers and policy briefs by NSW Health staff on population health research</p>	<p>2.2.1 Provide leadership and advocacy to promote the value of population health research and its use in policies and programs, including through contributing to relevant dialogues and discussions, and making submissions regarding relevant policies and strategic documents</p> <p>2.2.2 Actively promote the conduct of high quality research and evaluation of policies and programs</p> <p>2.2.3 Support the conduct of knowledge translation research to better understand the value and effectiveness of strategies to facilitate the use of research in policy and practice</p> <p>2.2.4 Encourage staff to engage in research by enabling skill development, supporting formal postgraduate study, and mentoring staff to design and conduct research and publish and present research findings</p> <p>2.2.5 Develop and provide resources and training to support staff to plan, design, commission, appraise and use policy-relevant research and evaluation, including economic evaluation</p> <p>2.2.6 Support staff participation in training and development opportunities offered through external organisations</p> <p>2.2.7 Maximise awareness of population health research and assets supported by NSW Health by regularly reporting on research activity with an emphasis on research outputs and outcomes</p> <p>2.2.8 Fund and support research centres to hold forums to facilitate exchange between researchers and policy makers</p> <p>2.2.9 Take advantage of opportunities to locally host research seminars and exchanges</p> <p>2.2.10 Provide regular professional development opportunities for policy makers and practitioners, including Bug Breakfast and the Epidemiology Special Interest Group (Epi-SIG)</p>	<p>2.3.1 Support an integrated knowledge translation approach to ensure activities aimed at promoting the use of research findings are included throughout the research process</p> <p>2.3.2 Facilitate the incorporation of strategies to encourage the use of research findings in policy and practice in research schemes and projects supported by NSW Health</p> <p>2.3.3 Require funded research centres to engage with policy makers and practitioners through research planning and dissemination processes</p> <p>2.3.4 Create opportunities for reflection on research findings and the planning of further actions</p> <p>2.3.5 Encourage conjoint university appointments for population health staff</p> <p>2.3.6 Enhance the capability of researchers to engage in knowledge translation</p> <p>2.3.7 Actively promote case studies demonstrating the use of research and evaluation evidence to inform population health policy and practice, including to address health inequities</p>

Strategy 3. Build population health research capability

<i>Strategy 3.1. Build skills for population health research</i>	<i>Strategy 3.2. Develop and maintain research infrastructure</i>	<i>Strategy 3.3. Foster partnerships for collaborative research</i>
3.1.1 Lead NSW Health population health training programs: Aboriginal Population Health Training Initiative, Biostatistics Training Program and Public Health Training Program	3.2.1 Host and provide direct infrastructure funding for the Centre for Health Record Linkage	3.3.1 Support the Sax Institute which, as part of its core business, brings together decision makers and researchers to collaborate and exchange ideas
3.1.2 Support the Early-Mid Career Fellowship and PhD Scholarship schemes to build the career paths of population health researchers and develop skills in priority areas	3.2.2 Support the establishment of the NSW Health Statewide Biobank	3.3.2 Support the Australian Prevention Partnership Centre to conduct research into building an effective, efficient and equitable system to prevent lifestyle-related chronic disease
3.1.3 Support Prevention Research Support Program recipients to build the prevention research capability of NSW Health staff	3.2.3 Fund and administer SAPHaRI	3.3.3 Encourage greater collaboration with external organisations on NHMRC Partnership Grants, ARC Linkage Grants, and other partnership grant opportunities
3.1.4 Support a dual learning partnership between Aboriginal people and the population health workforce by: <ul style="list-style-type: none"> - Building the research leadership capacity and capability of Aboriginal people to conduct research, and - Building the capacity and capability of the population health workforce to undertake research and evaluation in Aboriginal health, through active engagement and involvement from the Aboriginal community 	3.2.4 Undertake a program of work to standardise and document major population health datasets	3.3.4 Collaborate on discrete practitioner- or researcher-initiated partnership projects that are of interest and relevance to NSW Health
3.1.5 Support the development of population health research skills in areas of priority including implementation science, evaluation (particularly of complex interventions), epidemiology, bio-informatics, health economics and biostatistics; particularly at the local level	3.2.5 Improve policies and processes relating to data quality, access, sharing and governance	3.3.5 Fund research that encourages partnerships, including with local population health services, through initiatives such as the Translational Research Grants Scheme
3.1.6 Improve the use of technologies to enable access to research exchanges and training opportunities, including online training to support practice guides and research frameworks	3.2.6 Provide support for other NSW research assets such as the 45 and Up Study and SURE (via support to the Sax Institute)	3.3.6 Promote co-production of research where decision makers are meaningfully involved from an early stage in developing research questions, undertaking the research, interpreting the findings, and disseminating and using the results
3.1.7 Support short-term staff exchange or secondment opportunities across policy/practice and research environments, where there is mutual benefit	3.2.7 Administer the Prevention Research Support Program	3.3.7 Maintain the NSW Ministry of Health Population and Public Health Research Group to support internal communication and collaboration about research funding and related issues
3.1.8 Administer an evaluation e-group to support the development of program evaluation capability across the Ministry, Pillars and local health districts	3.2.8 Support a focus on cross-jurisdictional research with linked data to better understand the causal determinants of population health and health needs, and to assess the impacts of health policy and programs	3.3.8 Coordinate the health cluster Evaluation Expert Reference Group to enable a strategic, collaborative approach to achieving whole-of-government program evaluation requirements
		3.3.9 Provide NSW Ministry of Health representation on the NSW Government Evaluation Strategy Working Group
		3.3.10 Encourage the involvement of consumers and communities that are likely to be affected by research, particularly priority population subgroups, in the planning and conduct of research

