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EVIDENCE AND EVALUATION GUIDANCE SERIES

Setting Research Priorities

A Guide



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The NSW Ministry for Health acknowledges the traditional custodians of the lands across NSW. We acknowledge that we live and work on Aboriginal lands. We pay our respects to Elders past and present and to all Aboriginal people.

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Contents

| | |
|---|----|
| Introduction | 4 |
| Stage 1: Background investigation and preparation | 7 |
| Stage 2: Generate and refine research priorities | 9 |
| Stage 3: Finalise and disseminate research priorities | 14 |
| Stage 4: Review and update research priorities | 15 |
| Conclusion | 16 |
| References | 17 |
| Appendix 1: Overview of research types and stages | 18 |

Introduction

This guide has been developed to assist NSW Health staff to identify and update population health research priorities. While it is written from a population health perspective, the guide may also be useful for supporting research priority setting processes in other health or human service fields.

The guide includes information on:

- the purpose of setting research priorities
- principles of effective priority setting
- a suggested process for setting, disseminating and reviewing research priorities.

Note that for the purposes of this guide ‘research’ includes research for problem definition, solution generation and evaluation.

The purpose of setting research priorities

Research priority setting aims to maximise the benefits of research investment, providing valuable direction for the allocation of public and private research funds into areas of strategic importance. Using a systematic, explicit and transparent process to set research priorities helps to ensure that funded research has the greatest potential public health benefit, that research is aligned with the evidence and with the needs of decision makers, and that limited resources are used efficiently and equitably.¹⁻⁴

For policy areas in NSW Health, having clear, communicated health 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 NSW Health research priorities
- allow potential NSW Health funding applicants to tailor their applications to NSW Health research priorities
- inform those seeking NSW Health involvement in partnership grants of areas of interest to NSW Health
- assist policy areas in responding to requests for research funding.

Levels of research priorities

Research priorities can be set at a **broad thematic level** (e.g. environmental health, healthy weight), an **intermediate topic level** (e.g. water quality, physical activity), or at the level of **specific research questions** (e.g. what are the most effective strategies for increasing fruit and vegetable intake among school children?).

Research priorities can also be defined by:

- **population group** (e.g. Aboriginal people; older people; children; gay, lesbian, bisexual and transgender communities; people affected by hepatitis C)
- **setting** (e.g. rural and remote areas, schools)
- **research types** (e.g. **intervention research**, health economic research)
- **issues** (e.g. health equity, health systems access, emerging threats to health, social determinants of health).

Principles of effective research priority setting

The following principles should underpin a research priority setting process:

- The priority setting process is based on a thorough and up-to-date **analysis of relevant information** from the policy and research settings, including consideration of any gaps in evidence relevant to decision making.

- The process **involves stakeholders** likely to be affected by, or with an interest in, the research priorities. Stakeholders may include, for example, funders, researchers, policy makers, practitioners, non-government organisations, and consumer representatives.
- **Robust, transparent criteria** are used to identify and rank research priorities.
- There is **flexibility** to address emerging population health issues. This may entail, for example, allowing additional priorities to be identified in response to natural, social or economic events, major population gatherings where a large number of people come together in a particular location for a specific purpose, or disease outbreaks.

It is important that research priority setting considers the needs and interests of Aboriginal people; the NSW Aboriginal Health Impact Statement can support staff to apply an ‘Aboriginal health lens’ to the priority setting process. Where a research priority setting process has a focus on Aboriginal health, there are additional requirements to ensure the process and any agreed priorities meaningfully engage and reflect the needs of Aboriginal communities (Box 1).

Box 1: Research priority setting in Aboriginal health

Research in the field of Aboriginal health must be ethical and culturally relevant and must consider Aboriginal communities’ perceptions and understandings of what works best for their communities.⁵ To help ensure research is safe, respectful, responsible, high quality, and of benefit to Aboriginal people and communities, research priority setting processes in Aboriginal health should ensure:^{5,6}

Aboriginal communities are **involved as equal partners** in the process. In practical terms, this will require a mechanism for meaningful engagement with Aboriginal communities and/or organisations, such as an advisory or reference group with appropriate representation, and/or engaging with Aboriginal community-controlled organisations.

Aboriginal people involved in the research priority setting process **feel culturally safe** and that their views are valued. Opportunities to build and support the capability of Aboriginal people and organisations involved, including academic mentoring, should be considered and implemented as necessary.

Research priorities agreed through the process **address existing or emerging needs** articulated by Aboriginal people and communities.

Suggested process for setting research priorities

Figure 1 outlines a four-stage process for setting and reviewing research priorities in a specific policy area. For the purposes of this guide, a policy area is an area of strategic policy focus. The policy area may be relatively focused (e.g. HIV prevention) or broader (e.g. prevention of sexually transmissible infections and blood borne viruses), or may pertain to a priority population group (e.g. Aboriginal health).

Stage 1 is to undertake background preparatory work to inform the research priority setting process. **Stage 2** describes the process to generate, refine and prioritise research themes, topics and questions. **Stage 3** covers the finalisation and dissemination of research priorities. **Stage 4** addresses the requirements for reviewing and updating research priorities. Each stage incorporates a number of components, which may or may not be relevant depending on the individual circumstance. While the guide is written in a linear manner, the components are not intended to be strictly sequential, and the entry point for each user may vary.

Figure 1. Suggested four-stage process for setting and reviewing research priorities



Stage 1: Background investigation and preparation

The **aim** of Stage 1 is to undertake preparatory work to inform the research priority setting process.

The **components** of Stage 1 are not intended to be undertaken sequentially and may have different degrees of importance, depending on the situation.

1.1 Establish an advisory/steering group to oversee the research priority setting process

Depending on the anticipated breadth of the research priority setting process, it may be worthwhile to establish an advisory/steering group. In this document the term advisory group will be used, however the type of group may vary. The decision regarding how the group is structured (i.e. advisory, steering or other) will be based on the expected roles and responsibilities of the group. The advisory group may include representation from the relevant policy area and key stakeholders. For research priority setting processes focused on Aboriginal health, the advisory group should include appropriate Aboriginal community representation. The advisory group may play a role in determining the purpose and scope of the process (see 1.2), advising on the current policy and research environments (1.3), developing priorities for consideration (2.1), assisting with the identification of stakeholders (2.2), and/or providing input into finalising the research priorities (see Stage 3).

1.2 Determine the purpose, scope and timeframe for setting research priorities

At the start of a research priority setting process, it is important to consider:

- how the research priorities will be used by the policy area
- who else will use the research priorities
- what funding, if any, will be available to support research around these priorities, as this may influence how the priorities will be developed and used.

It is also important to consider whether the priority setting process aims to identify broad level priority themes, intermediate-level topics, or specific research questions (see ‘Levels of research priorities’ above).

As there is no gold standard or best practice model for setting research priorities, decisions around the most appropriate approach should be informed by factors such as the resources available to undertake the priority setting process, the value placed on wide consultation, and time constraints.⁴ Any unique requirements associated with the policy area (e.g. Aboriginal health) should also be considered.

The greater the number of data collection components (e.g. surveys, interviews, focus groups, workshops) and stakeholder consultation rounds that are included, the greater the resource requirements and the more time the priority setting process will take to complete.

From an early stage, it may be helpful to consider what the output from the priority setting process might look like. For example, is an integrated portfolio with complementary priorities preferred, or is a disparate portfolio with distinct priorities favoured (see Stage 3)? Will the research results be required in the short (within one year), medium (two to four years) or longer (five to 10 years) term? These factors may influence the approach taken.

1.3 Define the existing policy and research environments

Understanding the **policy context** will increase the likelihood that research priorities are relevant to current strategic priorities and that they will make a difference to decision making. It should be noted, however, that some flexibility to respond to changing contexts or policies must be retained.

A review of the policy context may include appraisal of NSW state-level plans to identify relevant objectives, consideration of national or NSW strategies relevant to the specific policy area, and assessment of policy statements from academic institutions or other stakeholder organisations.

Understanding the existing **research** environment will help to identify evidence gaps of relevance to decision makers, and can also draw attention to areas of low research activity and highlight opportunities to build on existing research strengths or avoid duplication of research efforts.

A high level review of the research environment may include:

- details of research relevant to the policy area that has been supported and/or funded by NSW Health over the last three to five years, including funding arrangements and research questions
- relevant current research funded by other bodies such as the National Health and Medical Research Council or non-government organisations
- research supported by large consortiums, such as Advanced Health Research and Translation Centres, and other partnership centres
- relevant guidelines, recent reviews and research reports that identify opportunities for further research or gaps in the evidence base.

1.4 Determine criteria to assess priorities

The use of clearly defined criteria to assess priorities helps to focus discussion around potential research priorities and ensure that important considerations are not overlooked. Having clear and specific criteria also increases the transparency and objectivity of the process.^{2,7,8}

The criteria that will be used to determine and rank research priorities may be reviewed by the advisory group and stakeholders.

Suggested criteria include:

- Research evidence **could make a difference** to decision-making. This means that the research is focused on an area of need, and that the findings have the potential to be *translated* into improved policy or practice and/or inform *scale up* across the health system to maximise benefits.[†]
- The issue is **relevant to current population health strategic priorities**, including national/state health priorities and policies that affect population health, and national/state research priorities.

- Research will **address gaps in knowledge** (e.g. complements existing research, adds value, is timely).
- Research has the **potential to address health inequities** within the NSW population.
- There is an anticipated **return on investment** through the use of research evidence in population health policy, services or programs in the short term and health benefits to the NSW population in the medium term.
- Areas of **research or practice excellence** are used to advantage (e.g. builds on research strengths, uses existing data collections, provides a competitive advantage).
- Opportunity is provided for **collaboration and partnerships** between researchers and policy makers/practitioners, and/or with academic institutions and research institutes, non-government organisations, communities and industry.

Additional criteria can be added if necessary. These might include, for example, feasibility of the research including practicability of particular methodologies and availability of resources, or anticipated ‘windows of opportunity’ for change due to political events. Criteria may also be weighted so that there is greater emphasis placed on those criteria deemed most important.

Stage 2: Generate and refine research priorities

The **aim** of Stage 2 is to identify the research themes, topics and questions that should be prioritised.

The **components** of Stage 2 may be undertaken iteratively rather than sequentially.

2.1 Generate ideas for research themes, topics and questions

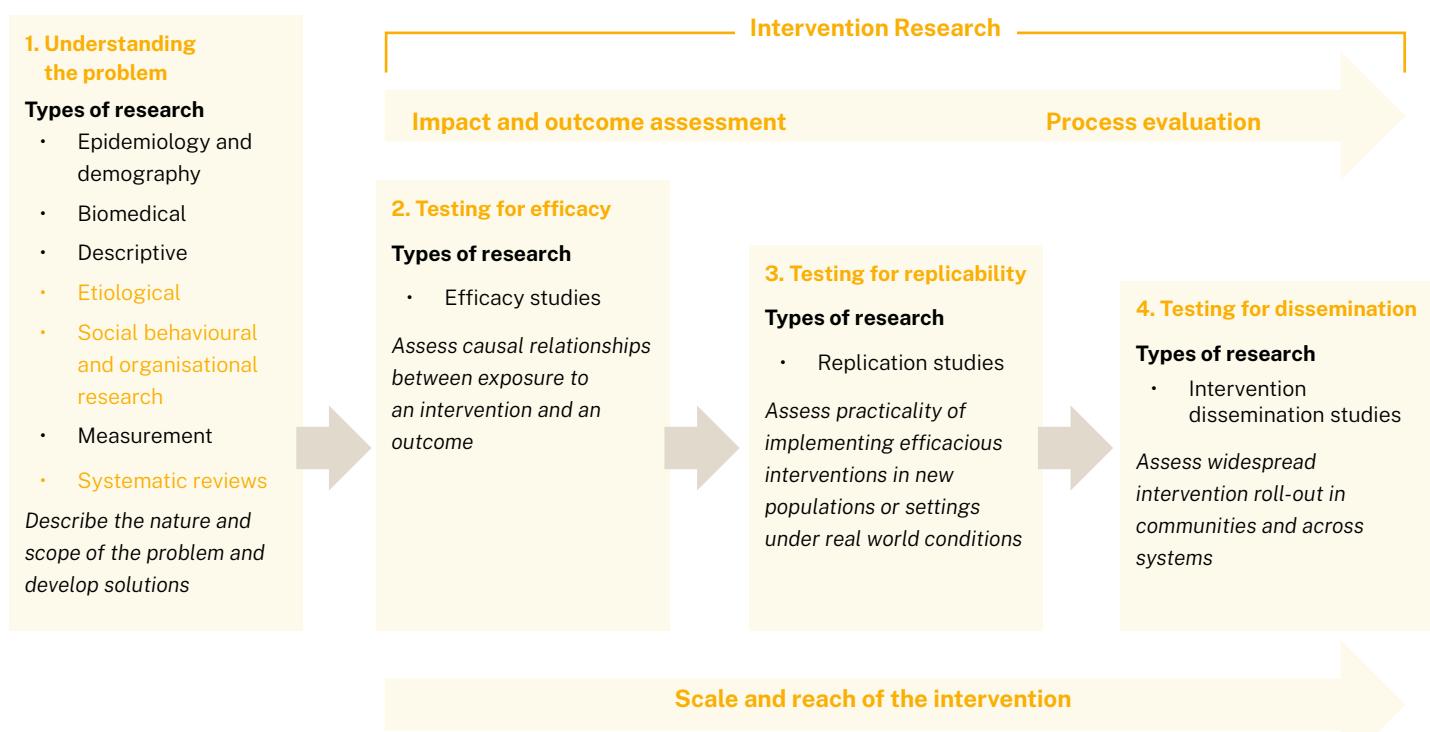
It is suggested that an initial list of research priorities is generated at a team level, drawing on existing expertise within the relevant policy area and consultation with a small number of key partners (such as the advisory group) if required. The level of detail will depend on the desired level of research priorities (i.e. research themes, topics and/or questions) that was determined in Stage 1. Policy officers may have some initial thoughts about priorities for research based on their knowledge of the research evidence, gaps in the evidence base, and the political context.

Following the high level review of the research environment (Stage 1) a **focused review** of the research may assist with the process of generating

research themes, topics and questions. In some situations, it may be helpful to commission a rapid review of recent and ongoing research. Existing research contacts (e.g. in NSW Health-funded research organisations) or relevant advisors in the policy area may be able to assist in identifying current research. The advisory group may also be able to inform this step.

When reviewing the research evidence, consider the type and stage of the research (Figure 2),⁹ such as **descriptive studies** undertaken to understand a problem, or intervention replication studies to assess the practicality of implementing interventions with demonstrated efficacy in new populations or settings under real world conditions. Appendix 1 includes more detail about the research types and stages depicted in Figure 2.

Figure 2. Public health research progression model⁹



The following steps may assist with the process of generating research themes, topics and questions:

Identify key themes and topics

- Based on findings from the policy and research reviews, list key themes such as health priority areas, risk factors or health behaviours, important population groups, settings, and other issues (e.g. health equity, health systems access). Consider how these overlap with one another and refine broad themes into more focused topic areas where possible (e.g. healthy weight, physical activity and teenage girls).
- Within each theme or topic area identify any gaps in knowledge or needs in terms of decision-making processes.

Develop research questions

- If specific research questions are of interest, insert existing priority research questions or generate new priority research questions under each theme.
- Try to ensure that the research questions are clearly framed, focused and answerable. Where possible, structure each question using the PICO framework to specify the Population, Intervention (where relevant), Comparison and Outcomes of interest (Box 2).¹⁰

Box 2. Formulating answerable research questions using PICO*

| | |
|---------------------|---|
| P population | The group of interest may be a population, a community or individuals. Consider how the group can best be described (e.g. age, gender, health status, setting) and whether any sub-groups are of particular interest. |
| I intervention | Interventions may be at an individual or population level. Interventions cover a wide range of activities from drug treatments and other clinical therapies to education, counselling and lifestyle modification programs, approaches to service provision, regulation and legislation, and environmental health interventions. |
| C comparison | The comparison intervention may be no intervention, another intervention or standard care/practice. Note that in some situations a comparison may not be necessary, such as where the question relates to seeking meaning (e.g. why do female teens smoke cigarettes?) |
| O outcomes | The outcome of interest may relate to the implementation of the intervention (i.e. process) or its effects (e.g. knowledge, behaviour, access to services, morbidity). The cost effectiveness of an intervention may also be of interest. |

Examples of answerable questions:

- Are social marketing initiatives (I) more effective at increasing fruit and vegetable consumption (O) among school aged children (P) than school-based education programs (C)?
- Do needle and syringe programs (I) reduce the risk of transmission of Hepatitis C (O) among people who inject drugs (P)?
- Can a lifestyle modification program (I) for adults with diabetes risk factors (P) be successfully delivered in a primary healthcare setting (O)?

* PICO may alternatively be expressed as PEKO (Population, Exposure, Comparator, Outcomes) or PICOT (Population, Intervention, Comparison, Outcomes, Time).

Consider timeframes and types of research

- Consider whether a particular type or stage of research (see Figure 2) is required under each theme or topic area. For instance, is there a need for research to determine the prevalence of a health condition or behaviour, or research to identify the best methods to roll out effective interventions?
- Consider when the research results will be required: in the short term (within one year), medium term (two to four years) or longer term (five to 10 years).

2.2 Identify key stakeholders and plan consultation

After considering the research priorities as a team, consider consulting with identified stakeholders to further develop and refine the research priorities.

The need for wide-ranging and comprehensive stakeholder involvement is increasingly being recognised as critical for setting research priorities.

Involving a broad group of stakeholders is likely to increase:

- the **transparency** and **inclusiveness** of the priority setting process
- the likelihood that a **range** of research priorities will be identified and considered
- the likelihood that the research priorities will **reflect the collective opinion** and be **acceptable**, which will facilitate their uptake by researchers
- the likelihood that the outcomes of research will be **relevant to decision makers**, which will facilitate knowledge transfer and the implementation of research findings.^{2,4,8,11-14}

Different stakeholders will bring different perspectives and motivations to a research priority setting exercise (Figure 3).

Figure 3. Stakeholders and their perspectives



The range of stakeholders and the extent to which they are consulted will depend on the purpose, scope and timeframe of the priority setting process (Stage 1.2). For example, if the aim is to identify areas where investment in research is most likely to improve service delivery, input from those managers and policy makers most closely related to service delivery on a daily basis will be imperative.¹¹ For research priority setting processes focused on Aboriginal health, it is important that there is appropriate consultation with Aboriginal people and community groups to ensure genuine community engagement, a shared understanding of the process, and opportunities to build trust and positive relationships.

It is important to be aware of any sensitivities concerning stakeholders—for example where different groups (e.g. policy makers, clinicians, professional bodies, advocates, researchers) are known to have diverging values or viewpoints—as this may influence the approach selected for consulting with stakeholders.

Once key stakeholders have been identified, it is then important to consider the type and format of stakeholder consultation that will best suit the research priority setting process (Box 3).

Box 3. Type and format of stakeholder consultation

Type of stakeholder consultation

Consider whether stakeholders will:

- Review the proposed assessment criteria?
- Be involved in developing the research priorities?
- Review the proposed research priorities?
- Be asked to rank the proposed research priorities?

Format of stakeholder consultation

- Face-to-face methods, such as workshops, focus groups and roundtables, enable ideas to be debated and alternatives developed. Greater depth of feedback may be received.
- Remote consultation methods, such as surveys and telephone interviews, are generally less time consuming and resource intensive and allow stakeholders across a wide geographical area to participate.
- It is possible to use a combination of approaches, for example asking stakeholders to complete a survey prior to meeting face-to-face.

2.3 Consult with stakeholders to review the research priorities

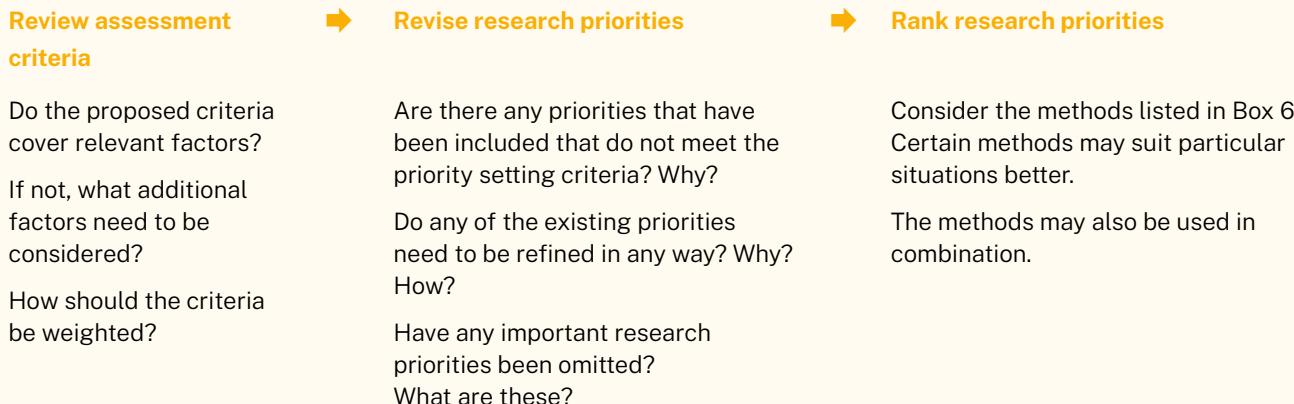
When preparing materials to guide the stakeholder consultation, it is important to provide enough information to enable stakeholders to make informed decisions about the proposed research priorities. Box 4 summarises the information that should be provided to consultation participants. If a broad range of stakeholders is involved, care should be taken to consider and account for the different understandings individuals may have about the policy area.

Box 4. Information for stakeholders

- Explain the purpose of setting the research priorities and how they will be used
- Describe the policy context
- Describe the current research environment
- Provide an overview of the priority setting process that is being used; for example, advisory group, internal process, external consultation, timeline, final decision by advisory group
- List suggested criteria for assessing priorities
- Describe draft research priorities including research themes, topics and/or questions. It may be useful to clarify the policy relevance of each and describe how research in this area will support program and policy decision making
- Explain the planned consultation process

The steps in stakeholder consultation are informed by the types of stakeholder consultation that have been identified as necessary (Stage 2.2). Box 5 sets out a potential process for the stakeholder consultation. Depending on the types of consultation needed, a multi-stage process may be required; for example, initial feedback is compiled, the priority list is refined, and then stakeholders are asked to rank the revised priority list. This type of approach is often referred to as a Delphi or modified Delphi process in published literature.^{15,16} Between each step, the advisory group may be consulted to provide input as required.

Box 5. Potential process for consulting with stakeholders



After the ranking process, the results may be presented to the stakeholder group for discussion to reach consensus or determine if the outcome accurately reflects the general feelings of the group. Note that as different stakeholders are likely to be knowledgeable in different areas, approaches that aim to reach consensus should take into account

stakeholders' diverging values and viewpoints. As consensus-based exercises are potentially susceptible to dominance by a few individuals or a particular stakeholder group, metric-based processes (i.e. where individual rankings are pooled) may be preferable.²

Box 6. Methods for ranking research priorities^{8,13-16}

Prioritise a certain number of research priorities

Each stakeholder nominates a given number of priorities that they feel have greater importance, after considering the agreed criteria, than others. The priorities are then ranked according to how many times they are nominated by participants.

Rank all of the research priorities

Each stakeholder ranks each research priority from highest to lowest, based on their perception of its overall importance and after considering the priority setting criteria. A number is assigned to each priority in descending order with the largest number given to the priority considered most important. The numbers assigned to each priority by the participants are summed to determine an overall ranking.

Allocate points according to perceived overall priority

Each stakeholder allocates a set number of points across the research priorities as they see fit. A maximum number of points per priority may be set. More points are allocated to the priorities stakeholders feel are more important after considering the priority setting criteria. The points allocated to each priority by participants are summed to determine an overall ranking.

Rank using a scale for each criterion

Each stakeholder uses a scale (e.g. 5-point scale) to assign a score to each identified criterion for each research priority. The scores for each priority are summed across participants to produce an overall score for that priority. Mean and median scores for each research priority are then considered to determine overall rankings. It is possible using this method to weight some of the criteria more heavily than others.

Stage 3: Finalise and disseminate research priorities

The **aim** of Stage 3 is to agree and disseminate the research priorities.

The **components** of Stage 3 are likely to be addressed in sequence.

3.1 Reach agreement on research priorities

Following the stakeholder consultation, the advisory group (or policy staff, if there is no advisory group) should review the findings to finalise the research priorities. In addition to the findings from the stakeholder consultation process, it may be useful for the advisory group to consider whether a ‘balanced’ portfolio of research priorities is important. Balance refers to a mix of research of different type, scope or focus. If a balanced portfolio is required, consider whether the agreed research priorities reflect a reasonable mix of:

- types and stages of research (see Figure 2) (e.g. research to describe the problem plus research to test the efficacy of an intervention)
- research methodologies (e.g. descriptive epidemiological research plus controlled trials to test whether an intervention is effective under ideal circumstances)
- short term, medium term and longer term issues
- population groups, including at-risk target groups (e.g. research targeting the whole community plus research focusing on groups disproportionately affected by the issue according to age, gender, socioeconomic status, etc)
- locations and settings (e.g. in the general community, schools, workplaces, etc).

A related consideration is whether the portfolio of research priorities should be integrated or disparate (see 1.2). An integrated portfolio may enable a policy area to leverage additional resources for research, or to achieve a greater return on its research investment. Alternately, a disparate portfolio may be preferred

where there is uncertainty about the feasibility or outcome of research in one or more areas.

When the final research priorities have been agreed, approval from the appropriate Executive Director should be sought before the research priorities are published and disseminated.

3.2 Disseminate research priorities

Effective communication of the research priorities is essential if they are to influence the research and funding agendas of stakeholders. A dissemination strategy should be developed to outline how stakeholders will be informed about the research priorities. As a first step, the list of research priorities should be available to key stakeholders who have contributed to their development.

Other groups to consider in a dissemination strategy may include:

- university-based and other research groups who may be interested in applying or submitting a request for research funding to the NSW Ministry of Health
- other policy branches of the NSW Ministry of Health and other parts of NSW Health whose work may be relevant to the research priorities
- any other agencies or groups who may potentially be research partners or advocates (e.g. non-government organisations, local councils, multicultural health agencies, other policy agencies).

It may be appropriate to develop a range of materials to ensure the needs of different stakeholder groups are met, taking into consideration the various ways in which the priorities will be used.¹⁷

Stage 4: Review and update research priorities

The **aim** of Stage 4 is to review and update the research priorities as required.

It is recommended that a comprehensive process to develop research priorities be completed in the first instance and then a less comprehensive process for reviewing and updating these priorities be established. The process could be completed on an annual basis or timed to coincide with health strategic planning or other decision making processes.

The process to review and update the priorities may take into account:

- any feedback from the initial process about its usefulness and value in terms of generating relevant and acceptable research priorities
- whether any action has occurred in relation to the initial list of research priorities
- whether any priorities that have not been acted upon are still relevant to the current policy and research environment and should remain on the list
- whether new priorities should be added to the list.

Conclusion

This guide for setting research priorities has been developed with reference to the best available evidence. While the process has been described in stages, it may not be appropriate to apply the stages in a sequential way; the process should be adapted to fit the needs of the local situation or changing circumstances. Setting research priorities is usually an iterative process, and modifying the process as it proceeds can be constructive. A good plan can help to simplify the process and set clear expectations from the beginning.

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Appendix 1. Overview of research types and stages

Biomedical research investigates the biological process and the causes of diseases.

Descriptive studies explore the frequency, patterns, correlates or predictors of a health behaviour or health issue. They may also explore related variables such as knowledge, attitudes, healthcare practices, policy, or legislation.

Dissemination studies examine processes and factors related to widespread roll-out of an evidence-based intervention in communities and across systems.

Efficacy studies assess the causal relationship between exposure to an intervention and an outcome when the intervention is delivered under optimal conditions or in an ideal setting.

Epidemiology is the study of the distribution and determinants of health issues (including disease) or health behaviours, and the application of this study to the control of diseases and other health problems.

Etiological studies include epidemiological and other research studies that investigate a causal relationship between exposure to a health risk factor and subsequent illness, disease or health outcome at the group (rather than the individual) level.

Evaluation is the systematic and objective process used to make judgements about the merit or worth of a program, usually in relation to its effectiveness, efficiency and appropriateness. Comprehensive program evaluations should integrate process, outcome and economic evaluation, with all components planned at the same time as the development of the intervention.

Intervention research involves the use of scientific methods to assess the effect(s) of a specific intervention (e.g. a policy, treatment, approach to service delivery).

Measurement studies develop or examine the qualities (e.g. reliability, validity, acceptability) of measurement instruments.

Replication studies assess the practicality of implementing interventions with demonstrated efficacy in new populations or settings under real world conditions.

Social behavioural and organisational research explores mechanisms and patterns of behavioural and social functioning relevant to health and wellbeing, and as they interact with each other, with biology and the environment.

Systematic reviews aim to identify, appraise and synthesise all relevant studies (of whatever design) in order to answer a particular question (or set of questions). They use a set of scientific methods that explicitly aim to limit systematic error (bias) and that enable other researchers to replicate the review.

