The Local Level Evaluation of Healthcare in Australia

Health Systems Improvement and Sustainability (HSIS) National Initiative

Australian Health Research Alliance
Funded by the Medical Research Future Fund
HSIS Working Group 3

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HSIS Working Group 3

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The Project Team express their gratitude to all participants who contributed during the workshop and stakeholder consultations and to the advisors who assisted with the preparation of this report.

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Australia’s health system, by most measures, serves us well. Compared to the OECD average, Australians have longer life expectancies and lower mortality from key non-communicable illnesses such as heart disease and cancer. However, despite the good news, there are known issues with our health system and they need attention now. Australia’s growing and ageing population, as well as its rising disease burden from chronic conditions, means demand for healthcare is rising. This increases the pressure on already strained health budgets.

Australia has been able to provide patients with the newest medical treatments and access to the latest medicines and technologies. However, just ‘spending more’ on healthcare is neither sustainable nor is it a solution to our changing health needs. Governments want to know whether healthcare spending is delivering ‘value’. Patients and the community also need to know what they are receiving for their health dollar.

The decisions as to what will, and what won’t, be provided to patients are made within the health system. It is decision makers such as specialist committees, health executives and clinicians who mostly determine whether a new technology or a new model of care will be provided to patients.

To make these decisions, information is needed on what health technologies and models of care work and, if they work, at what cost? Surprisingly, this information is lacking for many of the decisions that need to be made within our health services.

It is not only about new technologies and new models of care. The Australian healthcare system contains many technologies and models of care that have unknown effectiveness. This means that we are already paying for these technologies and models of care, however, we don’t know if they work.

Where Australia spends most of the health budget, at the ‘local level’, is where this information is most likely to be missing. This makes it hard for decision makers to know what should be retained, changed or removed from local health services.

The Productivity Commission has been calling for improved healthcare evaluation in Australia. Evaluation of healthcare provides information on clinical effectiveness and cost. If Australia improved the evaluation of healthcare, this information can contribute to better decision making by health executives and clinicians.

As better decisions are made on what healthcare is provided, patients and the community will receive better value from their health dollars.

This report pinpoints where strengthening of healthcare evaluation is needed. It provides a pathway to improve the evaluation of healthcare in Australia, through inclusion of social and economic indicators in clinical trials. It is an opportunity to improve Australia’s healthcare system in terms of effectiveness, equity and value.

22 November 2018
EXECUTIVE SUMMARY

Governments need to know whether the healthcare funded by taxpayers is delivering value for money. In turn, healthcare decision makers need to know whether the care delivered through Australia’s health system works and is cost-effective. Information on effectiveness, and cost, enables decision makers to select high value healthcare that provides patient outcomes that are affordable for the community. Evaluation provides evidence that informs these decisions. Australia needs to improve healthcare evaluation where most health funding is directed – at the local level.

BACKGROUND TO THIS REPORT

This report is an initiative of the Australian Health Research Alliance (AHRA). The AHRA consists of seven Australian Advanced Health Research Translation Centres (AHRTCs) and two Centres of Innovation in Regional Health (CIRHs). This report was undertaken by an AHRA collaborative known as ‘Working Group 3’ (WG3) and forms part of a larger national AHRA initiative for Health Systems Improvement and Sustainability (HSIS).

AIMS OF THIS REPORT

WG3 were asked to review and report on evidence at the local level on:

1.1 Models for the evaluation of healthcare;
1.2 Gaps in the evaluation of healthcare;
1.3 Strategies to critically evaluate healthcare systems and technologies.

WG3 were also asked to use the knowledge gained from addressing the above aims to design a framework suited to the Australian context to improve the evaluation of health-related technologies and models of care.

METHODS

1. A targeted review of the grey and peer-reviewed literature;
2. Consultations with thirty-three senior health managers and clinicians from twenty-seven health services across Australia;
3. Framework development using an expert panel.

DEFINITIONS

**Health technology**

includes: models of care, procedures, policies, administration and drugs and devices. It is anything designed to promote health, prevent and treat disease, and improve rehabilitation.

**Local level**

refers to the local areas within each Australian state and territory, such as a region or health district or hospital, where health services are delivered.

**Evaluation**

refers to the use of the best available evidence to determine whether a health technology or model of care should or should not be used in the health system. It incorporates into clinical trials measures of clinical, social and economic outcomes. Evaluation techniques include evidence synthesis, process evaluations, and qualitative and quantitative investigations.
INTRODUCTION

Australia’s Productivity Commission has raised inconsistent evaluation of healthcare as a major problem hindering improved efficiency in Australia’s health system. Improved evaluation is a means to address Australia’s rising healthcare expenditure and to obtain better value from each healthcare dollar. It is conservatively estimated that 20 percent of the annual healthcare spending (est. AUD $34 billion, 2016 dollars) could be better spent.

This report provides solutions to help reduce waste in the healthcare system. Improved value from healthcare spending can be achieved by ensuring only high value, cost-effective technologies are introduced and remain in the health system. It addresses the Medical Research Future Fund Priority for Comparative Effectiveness.

FINDINGS

Multiple models for evaluating healthcare are in operation

1. National evaluation bodies in Australia include the Pharmaceutical Benefits Advisory Committee (PBAC) and the Medical Services Advisory Committee (MSAC). These centralised evaluation agencies have well established detailed procedures and use proven methods to assess the effectiveness of medicines and devices.

2. Australian states and territories have their own agencies to evaluate health technologies, such as the Agency for Clinical Innovation in NSW. These agencies are designed to encourage and support clinical innovation and systems improvement.

3. During the consultations with local level health services, ninety-three percent of the representatives said their organisation did some evaluation in-house. The consultations identified that evaluation was important or essential for decision making (96%). All health services (100%) reported that evaluation influenced their decision making.

4. The consultations identified that health services have highly varied access to a skilled workforce in evaluation processes. Some functioning models for local health services do exist (see page 20). However, the consultations confirmed findings in the literature that local level evaluations tend to be inconsistent in terms of whether they are undertaken at all and, if undertaken, the quality and appropriateness of the methods used.

5. The local level is where Australia spends most of its health budget. Evaluation of healthcare at the local level is mostly based on decentralised models. As evidenced by the consultations, decisions are frequently based on clinical findings alone and sometimes, if evidence is unavailable or not accessed, on opinion.

Gaps identified in the evaluation of healthcare

1. Inconsistent evaluation of healthcare takes place where Australia spends most of the nation’s health budget – at the local level.

2. There is the lack of activity directed to reducing waste in the health system.

3. Integrated care is an emerging complex care model and requires improved evaluation to adequately report its range of costs and consequences (clinical and social). Evaluation techniques for such complex interventions are still developing. As such, it is a gap in the current evaluation ‘skill set’.

4. Consultations with health services revealed a shortage in the workforce with evaluation skills. Despite most health services being able to undertake some evaluation, ninety-three percent said they needed more in-house evaluation capacity. Specific issues raised were:

   4.1 A shortage of people with skills in evaluation, particularly noted were limited numbers of implementation scientists and health economists at the local level;

   4.2 A general lack of education and training in evaluation skills which hampers local level capability;

   4.3 Poor resourcing and financing for evaluation at the local level;

   4.4 Evaluation reports that are not helpful for decision making, particularly where measures of patient outcomes and experiences are needed;

   4.5 Poor sharing of data and evaluation outcomes between health services. This could mean multiple evaluations of the same model of care are undertaken across multiple health services;
4.6 An overall lack of monitoring and evaluation post-implementation. This means uncertainty as to whether decisions to introduce or remove a technology or model of care were implemented and, if they were, whether the expected outcomes were delivered.

There are good available strategies for healthcare evaluation

The body of international literature on the design and implementation of systems for healthcare evaluation is extensive (outlined on page 24). If this knowledge is combined with a will to redesign conventional practice, there is an opportunity to improve Australia’s healthcare evaluation architecture.

1. The consultations identified that there is an opportunity, and expectation, to utilise existing evaluation skills in universities and medical research institutes (MRIs). However, these skill sets must be applied to the needs of health services (e.g. health-service led evaluations).

2. Local level healthcare evaluation should consider: i) mini-evaluations (relatively inexpensive evaluations that are completed in short timeframes); ii) the inclusion of cost (i.e. economics); iii) consideration of equity and social implications and iv) Budget Impact Statements to improve the value of information provided to decision makers.

3. Evaluation that identifies high value healthcare (or low value healthcare) is only part of the process. The evaluation must meaningfully contribute to decision making, and the decision must be implemented. Further, post-implementation, the outcome of the decision must be monitored and evaluated to ensure optimal use of the technology or model of care, and to determine if the anticipated benefits materialise.

Framework for local level evaluation

Using the evidence from the literature and insights from the consultations with health services, a framework was developed for the evaluation of health technology and models of care at the local level. It is presented at two levels: a summary diagram and a detailed framework outlining what a platform for local evaluation could look like (see page 42).

TEN PROBLEMS AND SUGGESTED ACTIONS

A number of key problems and suggested actions have been developed from the works conducted in this report.

1. **Problem:** There is no national guideline or framework in Australia to describe what ‘local level evaluation’ might look like. A high-level framework is needed to guide strategic development to improve local level evaluation of health technologies and models of care.
   1.1 **Action:** An Expert Panel to endorse a framework for local level evaluation and implementation. The Panel should consider the framework designed by WG3 and make a recommendation to either adopt, adapt or reject it.

2. **Problem:** There is uncertainty amongst some health services about access to existing capabilities in evaluation. Accelerated access to evaluation resources is needed in some health services. At the same time, there is a need to share the experience of AHRTCs and CIRHs that are advanced in the provision of evaluation services to health.
   2.1 **Action:** Conduct an AHRA centre-wide audit of evaluation skills, capacity and capability. Include resources currently located in health services as well as in affiliated universities and MRIs. Include other external established expert resources used by health evaluations.
   2.2 **Action:** Collate information from the AHRTCs and CIRHs on their evaluation and implementation capabilities. Share this information with all AHRTCs and CIRHs and government health departments.
   2.3 **Action:** Develop national guidelines for local level evaluations to assist workforce capacity building. Include criteria for the design, evaluation and implementation of clinical trials.
3. **Problem:** There is inconsistency in how new technology or models of care are introduced into health services, and how front-line staff report suspected low value care.

3.1 **Action:** If one does not already exist, appoint an evaluation coordinator within local health services to be responsible for general evaluation advice to guide new technology applications or processes, and gather and prioritise intelligence on low value care.

4. **Problem:** Low value care remains an issue in health services and there has been limited success in dealing with it. Techniques are needed to identify potential low value care and then evaluate it, so that local disinvestment decisions are based on evidence.

4.1 **Action:** Better understanding of existing techniques (and their effectiveness) to identify and action local value care (e.g. Choosing Wisely). This information to be shared with all AHRTCs, CIRHs and government health agencies.

4.2 **Action:** Building on point 4.1, develop a national plan to guide identification of low value care, its prioritisation for evaluation and, if proven to be low value, recommended evidence-based implementation pathways for removal.

4.3 **Action:** Post implementation – ensure monitoring and evaluation of the strategies employed to remove low value care. Ensure the evaluated outcomes of the strategies are shared between health services.

5. **Problem:** Low levels of stakeholder engagement in evaluations. These include: patients, community, health service staff, policy makers, industry, government, philanthropic funders.

5.1 **Action:** Identify stakeholders and engage them at the start of a clinical evaluation to ensure relevant data is incorporated in the study design. Encourage local level health services to endorse community engagement in evaluations and develop processes to support and encourage it. Existing programs of Consumer and Community Involvement in health and medical research, such as through Monash Partners, are examples of what can be achieved.

6. **Problem:** The public, politicians and other community leaders know relatively little about the place of evaluation in healthcare decision making.

6.1 **Action:** Encourage public dissemination of evaluation outcomes. Promulgate evaluation outcomes through traditional media outlets, meetings with politicians, submissions to Parliament. Develop awareness-raising communications on health evaluation outcomes.

7. **Problem:** A lack of capacity building in evaluation and implementation skills. There is currently a shortage of skilled evaluators who are willing to work on health service issues.

7.1 **Action:** A national, state and territory supported statement on the need for evaluation and evidence in decision making.

7.2 **Action:** National consensus on curriculum content for training in evaluation and implementation skills.

7.3 **Action:** Support capacity building through:
   - A tool kit to promote evaluation across front line health services staff and senior management.
   - Provision of training and education to help embed these skills in health services.

7.4 **Action:** The provision of evaluation and implementation services through centres supported by AHRTC and CIRH affiliated universities and MRIs.

7.5 **Action:** Co-location of core evaluation skill sets within health services. AHRTCs and CIRHs could play a major role in facilitating co-location and ensuring health-led evaluations that address local health needs.

8. **Problem:** Funding for evaluation and implementation is haphazard. A dedicated funding stream to support capacity and capability in evaluation and implementation skills is required.

8.1 **Action:** Stabilise funding to support and sustain improved capacity in evaluation and
The framework has four interrelated recommendations:

1. **Establish** a national Expert Panel of people with the skills to develop the national and local level evaluation and implementation framework (consider the framework developed by WG3 presented in Chapter 3) as a National Advisory Committee on Evaluation and Implementation. It is recommended that the Committee:
   1.1. Oversee a national approach to local level evaluation and implementation;
   1.2. Recommend a curriculum to support tertiary training and professional development in evaluation and implementation;
   1.3. Set thresholds for AHRTC and CIRH centres to be accredited as Centres of Excellence in Evaluation and Implementation.

This recommendation addresses problems: 1, 2, 3, 4, 6, 7, 9, 10

2. **Boost education and training** and professional development for clinicians and managers, to ensure a sustainable health services workforce that is ‘evaluation and implementation capable’.

This recommendation addresses problems: 3, 4, 5, 6, 7, 10

3. **Increase the workforce of skilled evaluation staff at the local level** with the capability to:
   3.1. Be integrated into health services;
   3.2. Undertake evaluation and monitoring;
   3.3. Advise on the implementation of evidence-based decisions;
   3.4. Provide decision makers in health services with appropriately communicated information;
   3.5. Communicate about evaluation and implementation outcomes to a wide range of specialist and non-specialist audiences.

The conduct of evaluation and implementation by these resources must be informed by engagement with health professionals, the community, consumers and other stakeholders.

This recommendation addresses problems: 2, 3, 4, 5, 6, 7, 10

4. **Facilitate an increase in evaluation and implementation resources (financial) at the local level** that supports a sustainable integration of evaluation and implementation capability into health services’ decision making.

This recommendation addresses problems: 3, 4, 7, 8

9. **Problem**: Limited sharing of evaluation data and outcomes between health services means local health services can be simultaneously evaluating the same technology or model of care. Duplication is a waste of resources.
   9.1 **Action**: National consensus on how to facilitate sharing of evaluation and implementation data and outcomes. The consensus must consider existing state-based mechanisms and prioritise ‘curation’ of this data so that it can be efficiently searched.
   9.2 **Action**: National consensus on thresholds for information sharing and include these thresholds in any accreditation guidelines for centres of excellence in evaluation and implementation.

10. **Problem**: Health services staff do not always know how to translate the information in evaluation reports, particularly economic assessments, into practical information they can use in decision making. Specifically, whether a cost-effective technology or model of care will be affordable, given the available health budget.
   10.1 **Action**: Develop an Australian standard for Budget Impact Statements. Encourage their routine inclusion in any economic evaluation of health technology or model of care.
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ACRONYMS AND ABBREVIATIONS
USED IN THIS REPORT

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<td>ACI</td>
<td>Agency for Clinical Innovation</td>
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<td>AHRA</td>
<td>Australian Health Research Alliance</td>
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<td>AHRTC</td>
<td>Advanced Health Research Translation Centres</td>
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<td>AHRQ</td>
<td>Agency for Healthcare Research and Quality</td>
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<td>ARTG</td>
<td>Australian Register of Therapeutic Goods (ARTG)</td>
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<td>ASU</td>
<td>Acute Stroke Unit</td>
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<td>CEC</td>
<td>Clinical Excellence Commission</td>
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<td>CCA</td>
<td>Cost-consequence analysis</td>
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<td>CIRH</td>
<td>Centre for Innovation in Regional Health</td>
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<td>COPD</td>
<td>Chronic Obstructive Pulmonary Disease</td>
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<td>CTSU</td>
<td>Clinical Trials Support Unit</td>
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<td>DVA</td>
<td>Department of Veterans’ Affairs</td>
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<td>ED</td>
<td>Emergency Department</td>
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<td>EQ-SD</td>
<td>Euro Quol-Five Dimensions</td>
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<td>EU</td>
<td>European Union</td>
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<td>EUnetHTA</td>
<td>European Union network for Health Technology Assessment</td>
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<td>GDP</td>
<td>Gross Domestic Product</td>
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<td>GIHT</td>
<td>Global Initiative on Health Technologies</td>
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<td>HealthPACT</td>
<td>Health Policy Advisory Committee on Technology</td>
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<td>HMRI</td>
<td>Hunter Medical Research Institute</td>
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<td>HNECCPHN</td>
<td>Hunter New England Central Coast Primary Health Network</td>
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<td>HSIS</td>
<td>Health Systems Improvement and Sustainability</td>
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<td>HTA</td>
<td>Health technology assessment</td>
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<td>ICER</td>
<td>Incremental cost-effectiveness ratio</td>
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<td>IHPA</td>
<td>Independent Hospital Pricing Authority</td>
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<td>INAHTA</td>
<td>International Network of Agencies for Health Technology Assessment</td>
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<td>ISPOR</td>
<td>International Society for Pharmacoeconomics and Outcomes Research</td>
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<td>LHD</td>
<td>Local Health District</td>
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<td>MAUI</td>
<td>Multi-attribute utility instruments</td>
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<td>Multi-criteria decision analysis</td>
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<td>NEC</td>
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<td>Therapeutic Goods Association</td>
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<tr>
<td>UK</td>
<td>United Kingdom</td>
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<td>WADEP</td>
<td>Western Australia Drug Evaluation Panel</td>
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<td>WHO</td>
<td>World Health Organization</td>
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DEFINITIONS
USED IN THIS REPORT

**Health technology**

Includes: models of care, procedures, policies, administration and drugs and devices. It is anything designed to promote health, prevent and treat disease, and improve rehabilitation.

**Local level**

Refers to the local area within each Australian state and territory, such as a region or health district or hospital, where health services are delivered. The focus of on the evaluation of health technologies at the local level ensures reference is made to local context which means considering factors that might influence the need, priority or cost-effectiveness of a given health technology within a given setting. These include geography, demography, patient profiles, community preferences or local healthcare budgets.

**Healthcare evaluation**

Refers to the use of the best available evidence to determine whether a health technology or model of care should or should not be used in the health system. It incorporates clinical trial outcomes with social and economic measures. Evidence could be generated from a range of evaluation techniques including evidence synthesis, process evaluations, as well as qualitative and quantitative investigations.

**Health Technology Assessment (HTA)** is used to refer to the process of needs assessment, horizon scanning, evaluation, and the ongoing monitoring of health technologies. It is a term used by international organisations. In this report HTA is interchangeable with healthcare evaluation.
Healthcare evaluation is routinely undertaken in Australia at the national level for medicines, devices and prosthetics. It is also embedded within some state and territory health departments.

However, most of the nation’s health budget is spent at the local level, and evaluation here is inconsistent. Better healthcare evaluation at the local level has the potential to support both the use of high value care and the reduction of low value care. Better evaluation, combined with implementation, has the potential to win major improvements in the value delivered from Australia’s health system.
AHRA is developing a national framework for Health Systems Improvement and Sustainability (HSIS). The development of the national framework draws on work in four priority areas:

1. Health Services Research and Evidence Synthesis and Dissemination/Education;
2. Change and improvement of clinical practice;
3. Health systems evaluation and assessing new models of care;
4. Health Services Management Engagement in HSIS.

An expert panel, known as HSIS Working Group 3 (WG3) with representatives from NSW, SA, QLD and VIC and led by NSW Regional Health Partners, was formed to address Priority 3. This report by WG3 should be viewed in context of the outputs from other AHRA initiatives, particularly data linkage and community engagement, as well as the other HSIS framework working groups.

The aims for WG3 were to review and report the evidence on:

1. Models for the evaluation of healthcare;
2. Gaps in the evaluation of healthcare;
3. Strategies to critically evaluate healthcare systems and technologies.

An additional aim for WG3 was to develop a framework to improve the evaluation of health-related technologies and models of care in the Australian health context.

The focus of the work in this report on evaluation at the local level reflects the fact that most of Australia’s healthcare budget is spent here through, for example, local hospital services and primary health care. Despite the proportion of the health budget directed to the local level, it is an area where the evaluation of health technologies and models of care is inconsistent - if it is done at all.

This report contains:

1. Discussion of models, gaps and strategies;
2. A framework to guide the local level evaluation of health technologies and models of care that is applicable to Australia;
3. Ten problems identified in the local level evaluation of healthcare and suggested solutions;
4. Overarching recommendations to improve the local level evaluation of healthcare.

1.1 METHODS

Information was sourced from the available national and international literature, and from consultations with senior Australian health service managers and clinicians. The framework building component of the project utilised the literature, outcomes from the consultations with health service executives, a workshop with national experts and oversight by an expert panel. All members of this panel are authors of this report.

In summary, the literature review and consultations entailed:

1. A rapid targeted review of the grey and peer-reviewed literature including hand searching internationally recognised documents such as The AdHopHTA Handbook (a reference for hospital-based health technology assessment). Direct contact was made with state-level health services in QLD and VIC to seek further published information on healthcare evaluation used in those states.

2. Consultations were conducted with thirty-three senior executive managers and clinicians in twenty-seven health services across Australia. The consultations were conducted in face to face meetings or via telephone. A purposive sample for the consultations was identified by members of the HSIS Steering Committee. The list of questions that guided the consultations is in Appendix I; and a graphical presentation of key outcome themes is in Appendix II.

The organisations contacted were:

1. Local public health service providers (e.g. a Local Health District, Local Health Service or hospital);
2. Government state-level health agencies (e.g. Agency for Clinical Innovation in NSW and Better Care Victoria);
3. Private sector healthcare providers.

The consultations were conducted between May and August 2018.
1.2 AUSTRALIA’S HEALTH SYSTEM IS ONE OF THE WORLD’S BEST

Based on efficiency and equity, Australia’s healthcare system is rated fifth in the world. Australians are living longer lives without disability and with better quality of life. Eighty-five percent of Australians rate their health as ‘good or better’ which is substantially higher than the OECD average. These figures indicate Australia is doing well from its investment in healthcare. However, health gains made by reducing the burdens associated with infectious diseases have been replaced with new burdens from chronic diseases such as cardiovascular disease, cancer, and diabetes.

While Australia’s spending on healthcare is modest compared with countries such as the United States, there is growing concern about the affordability of the country’s health budget.

1.3 HEALTHCARE IS CHANGING

The demand for new and improved healthcare technologies is growing, in part because new and improved technologies are being developed, but also because Australia’s ageing population is shifting disease burdens. Australia has a relatively high median age relative to other countries, and its population profile is continuing to age. Predictions are that a quarter of the population will be aged over 65 by the end of the century (Figure 1). This ageing of the population has implications for future demand for health services and the location of that demand. Older Australians account for higher proportions of regional and rural population groups (Figure 2). Australia’s disease burden from chronic conditions is also rising and addressing complex health conditions will require innovative approaches for the health system to prevent, manage and treat disease.

Proportion aged 65 or more
Note: Excludes Illawarra catchment Statistical Area (NSW)
SOURCE: AIHW, Older Australia at a glance, web report, 2018

15% of the Australian population is aged 65 and over, defined as ‘older Australians’.

Some of the highest proportions of older Australians live in rural and regional Australia.

Note: Excludes Illawarra catchment Statistical Area (NSW)
SOURCE: AIHW, Older Australia at a glance, web report, 2018

Figure 1 Past and projected proportions of population aged 65 and over, Australia
SOURCE: AIHW, Older Australian at a glance, web report, 2018

Figure 2 Statistical Areas - 23 percent or more of the population aged 65+
The highest proportions of older Australians are in rural and regional Australia
The need to address inequity also drives demand for innovation. There is growing recognition of the health inequalities faced by Aboriginal and Torres Strait Islander people, as well as inequalities experienced by those living outside major cities in regional, rural and remote Australia. Addressing these inequalities will require innovation, or redesign, in the way healthcare across the country is delivered.

To meet demand for novel approaches to tackle Australia’s changing health needs, the Australian Government is supporting innovation through the Medical Research Future Fund (MRFF) designed to supercharge the growth in cutting-edge health and medical research, leading to new cures and treatments that are improving health outcomes across Australia.

1.4 INNOVATION AND EVALUATION

Many health technologies provide significant benefits to patients, healthcare providers, governments and other funders of healthcare. However, some health technologies do not deliver any benefit at all. The problem for governments and healthcare providers is to know whether an innovation delivers benefit, and if it does, at what cost. Healthcare providers need to make decisions about the use of new health technologies by considering relative effectiveness and cost, issues of equity, public expectations and overall affordability for the health system.

The pace of healthcare innovation makes it difficult to keep up with technological advances let alone be able to rigorously determine when a technology is effective (high value) or inappropriate (low value). The constant inflow of new healthcare technologies means a constant need for understandings of whether they work; that is, whether they are effective and deliver clinical, social and/or economic benefits. Understanding the relative effectiveness of technology or models of care is one piece of information needed by decision makers. Decision makers also need to understand the full cost of health technologies on health service budgets, and the impacts on whole of government and societal perspectives.

The need for evaluation is not just for new and emerging innovations coming into the healthcare system. Many existing health technologies and models of care have never been evaluated; hence their effectiveness remains unknown. If healthcare spending is weighted toward cost-effective care it will deliver gains for patients, healthcare providers, governments, as well as private sector healthcare payers. Better healthcare evaluation architecture is a means to weight the health system toward delivering cost-effective care.

1.5 SOME HEALTH TECHNOLOGIES ARE RIGOROUSLY EVALUATED: REIMBURSED MEDICINES AND DEVICES

Evaluations for benefit paid pharmaceuticals and medical devices in Australia are undertaken by the Pharmaceutical Benefits Advisory Committee (PBAC) and the Medical Service Advisory Committee (MSAC). These evaluations follow prescribed processes and the outcomes influence whether they will be publicly subsidised. The technologies evaluated represent a relatively small amount of the nation’s health budget. For example, spending on benefit paid pharmaceuticals represented about 6 percent of the nation’s total $170 billion health spend for 2015-16.

1.6 MOST HEALTH SPENDING OCCURS WHERE THERE IS LEAST EVALUATION – AT THE LOCAL LEVEL

A substantial proportion of Australia’s health budget is spent through hospitals and primary care. Recurrent hospital spending accounts for 38 percent of total health expenditure while recurrent primary healthcare accounts for a further 28 percent (excluding benefit paid pharmaceuticals; both figures for 2015-16). Apart from being large components of existing health spending, hospital and primary care expenditure is growing – relatively quickly. Over the ten years to 2015-16 hospital spending grew, on average, by 7.5 percent per annum while primary care spending grew by 6.4 percent per annum.

The devolution of healthcare spending to the local level also means many of the decisions about whether technologies and models of care are adopted, retained or removed from the system are made at this level, for example within regions, health districts, or individual hospitals.

It is at this local level where evaluation is sometimes methodologically weak and inconsistent.
1.7 LOCAL LEVEL EVALUATION IS A MAJOR GAP IN AUSTRALIA’S HEALTHCARE EVALUATION ARCHITECTURE

Consultations with health services identified limited ability to undertake evaluation of health technology and models of care at the local level, including: the need for inclusion of local context for decision making; and a need for better monitoring and evaluation to understand the downstream consequences of decisions post implementation (see Box 1).

Consultations with health services indicated that local decisions about health technologies and models of care are sometimes informed by local committees that assess new devices and procedures. The rigor of assessment at the local level is sometimes weaker and less formal than that required by national bodies such as the PBAC and MSAC.\textsuperscript{1,9,20}

Compared with national evaluation bodies, local level evaluations have varied levels of quality, often lack transparency and are inconsistent in whether they inform an approval decision – all factors that contribute to variation in patients’ access to health technology and models of care across the country.\textsuperscript{9,20}

A further criticism of existing local level evaluations is that they can lead to duplication of effort, which adds to the cost of evaluation (for example, evaluating the same technology twice by different health services).\textsuperscript{1,9}

1. Decision makers need evaluation to understand evidence in the local context

... Too often a technology or model of care is seen as being effective in another setting and just adopted and implemented without full understanding of whether it was appropriate for the local context.

... Decision makers ask for evidence [of a technology or model of care] - but the standard of evidence provided is often low. Often ‘opinion’ is the evidence.

... A problem is the ability of opinion leaders to influence decisions – a few powerful clinicians have good political links and tend to be well funded through foundations - they have great influence.

... [Evaluation’s contribution to decision making in healthcare] is particularly true for devices and drugs - is an established part of the approval process, as applicants must provide evidence of effectiveness, safety and quality. For models of care, it is not as rigorous, but in principle it should be.

... The need is to better evaluate imported technology - much of this comes from the USA and while it might work in their health system, it is not guaranteed to work here.

2. Better monitoring post-implementation was called for

... Need better follow up (monitoring) to assess outcomes after a new intervention is used. Did it work?

... We have models that are implemented and not evaluated, and they should be.

... We use business cases to introduce new technologies and models of care. A major problem is that if the model is implemented based on the business case, there is no follow-up to see if the promised benefits eventuated... we rarely measure patient outcomes and they should be.
1. Tailoring evaluations so that they account for variation in local population characteristics such as demography and geography (e.g. low value care in one setting might be high value elsewhere). The evaluation could also account for:
   1.1. Local disease burdens;
   1.2. Local health budgets and resources;

2. Evaluation of imported innovations as well as those that are developed at the frontline – i.e. clinicians developing solutions to local problems;

3. Better capture of the expertise of frontline staff in hospitals and primary care – as messengers of new technology coming into the system (horizon scanning), as well as innovators who design that technology;

4. Input into the design of clinical trials to ensure evaluation data is captured as part of the trial.

The variation in local level evaluation is exacerbated because some regions, health districts and hospitals have access to evaluation expertise while others do not. For those with access, there is the opportunity to evaluate locally developed healthcare innovations to determine whether they deliver value for money. (See Box 2 and references for examples of existing local level evaluations in Australia).

1.8 THE NEED FOR BETTER HEALTHCARE EVALUATION

The Productivity Commission presented a challenge in 2015 which remains unaddressed. The challenge was to improve Australia’s healthcare evaluation architecture to address waste and inefficiency.

Where Australia spends most of its health budget – the local level – is a logical place to address this challenge. The MRFF has also made Comparative Effectiveness one of the new priorities to be addressed in 2018-2020.

Within Australia, healthcare evaluation is routinely used at the national level and is embedded within some state-based health departments. However, local level evaluations of healthcare are not routine and vary in quality. Addressing this gap in Australia’s healthcare evaluation architecture offers an opportunity for improved evaluation capability across the nation, with implications for enhanced design of domestic and international clinical trials. The benefits are potentially scalable across the health system and the economy.

Governments subsidise many health treatments that have not been formally assessed for clinical and cost-effectiveness.... Duplication, fragmentation and poor transparency also detract from the efficiency of HTA processes. These issues can be readily addressed through revisions to Australia’s HTA architecture.

Productivity Commission, 2015
Centralised models of healthcare evaluation work well for nationally funded technologies. In Australia, new listings of medicines and devices require evaluation before they receive a subsidy from the Australian Government. These evaluations are conducted centrally and with a national perspective; they rarely take account of local context. Decentralised evaluation occurs in the states and territories; and within regions, districts and some hospitals. It is at this level that Australia’s evaluation architecture can be improved.
The following discussions represent the findings from the literature review and the consultations with health services (Appendix II).

2.1 EVALUATION MODELS

There are multiple ways to describe the range of models that could support the local evaluation of healthcare. One approach is to consider the spectrum of evaluation from a centralised through to a decentralised approach.

A centralised approach has a single, national, evaluation service. A centralised system works well for technologies with national relevance and where the evaluation is likely to be a high cost exercise requiring access to high level, and usually rare, expertise. In such instances the cost of the evaluation is shared across all states and territories (e.g. the evaluation of medicines for the Pharmaceutical Benefits Scheme). If considered for local level evaluation, a centralised approach could reduce duplication of effort, but it would need to consider how evaluations undertaken at the national level would be adjusted for regional or local context.

A decentralised approach devolves responsibility for evaluation to state and territory-based services or even further to local health services. This model could be considered when evaluation needs differ between regions or local areas because local context might affect the need for a technology or its mode of delivery. For example, delivery of a model of care to reduce farm accidents would have high relevance to regional and rural Australia. Evaluation in this model could be devolved to the health services where it might be considered for implementation.

The appropriateness of a centralised or decentralised approach should also consider innovation, driven by specific health service needs or ‘local context’.

For example, innovations in regional pre-hospital stroke protocols were a consequence of the particular needs of regional and rural communities. In regional Australia, patients often live at a considerable distance from an Acute Stroke Unit (ASU), where distance determines access to cost-effective time dependent stroke treatments only accessible via an ASU. In this example, a decentralised approach to innovation and evaluation meant that the local health service identified a need to improve access to stroke treatment. As a consequence, a model of care was developed by front-line clinicians. The model was implemented and evaluated with particular reference to the local context.

The following discussion is not intended to be an exhaustive list of all possible evaluation models, but to illustrate some centralised and decentralised examples that could be considered for the local evaluation of healthcare. The discussion also introduces international expertise via recommendations from a team led by Michael Drummond, who is an internationally recognised expert in healthcare evaluation.

2.1.1 Centralised evaluation models

Centralised evaluation is practised by Australian Government agencies that provide recommendations to the Department of Health about new medical services and devices; medicines and vaccines; and prosthetics.

Central to these evaluations is the operation of the Australian Government’s regulatory body, the Therapeutic Goods Administration (TGA).

The TGA determines whether therapeutic goods are to be listed on the Australian Register of Therapeutic Goods (ARTG). If the goods are high risk, intensive evaluation is undertaken to ensure safety, quality and effectiveness. Listing on the ARTG is required before therapeutic goods can be supplied in Australia or exported from Australia.

Evaluations of medicines and vaccines that are being considered for public subsidy are overseen by the Pharmaceutical Benefits Advisory Committee (PBAC) in a role that is written into the National Health Act (1953). Worldwide, Australia was the first country to introduce a requirement for these evaluations to consider cost and effectiveness before any new formulation could be listed for public subsidy. The PBAC’s listing recommendations have considerable influence on whether a formulation receives public reimbursement. While the Australian Government can reject a PBAC recommendation to list a medicine, it cannot list a medicine that the PBAC has rejected. The evaluation by the PBAC controls the public subsidy of medicines via the PBS. The evaluation methods used are prescribed by the Australian Government – these guidelines cover evidence synthesis, trial design and economic analysis.

The Medical Services Advisory Committee (MSAC) was established in 1997 with a remit to report on the evidence of “safety, effectiveness, and
The operation of the PBAC and MSAC in Australia is like other international bodies such as the Swedish Council for Technology Assessment in Health Care (SBU) and the United Kingdom’s NICE. All of these evaluation agencies produce evidence-based evaluations and provide guidance on the reimbursement of health technologies. Despite the centralised Australian approach outlined, consultations with government state-level agencies identified that technologies that were not approved by the Australian Government’s agencies might still receive state funding. For example, the consultations revealed state-level agencies such as the Western Australia Drug Evaluation Panel (WADEP) independently review medicines that are either not yet reviewed by the PBAC or rejected by the PBAC. These are typically treatments for diseases that have no other therapy or for innovative drugs, particularly oncology therapies.

### 2.1.2 Decentralised models: states and territories

Australian states and territories support initiatives to encourage and fund clinical innovation and, importantly, to share knowledge across regions of their state or territory. Examples of government state-level agencies that support clinical innovation include the aforementioned WADEP, the NSW Government’s Agency for Clinical Innovation and the QLD Government’s Clinical Excellence Division. These services provide guidance for health services on prioritisation, research, existing evidence, and evaluation. The NSW and QLD services provide a web-based portal to find, share and promote experiences in healthcare redesign.

Some state agencies also provide guidance on how evaluations should be undertaken and in some circumstances fund them. During discussions with state-level agencies, one reason for the state to fund an evaluation was when the technology or model of care was considered to have state-wide significance.

Some states also provide an ‘early warning service’ or horizon scanning to identify emerging technologies – an example is Victoria’s Health Technology Program. This program reviews emerging technologies, provides expert advice to the state’s Health Department, and hosts a horizon scanning committee. Technologies covered by this program are: prostheses, implantable devices, diagnostic tests, medical procedures and surgical procedures, but it does not review models of care.

During consultations the importance of evaluation was emphasised by government state-level health agencies. Some states identified in-house evaluation capability but, generally, this capacity was insufficient to meet demand. This meant many technologies and models of care were not evaluated. State-level services noted that outsourcing evaluations to commercial and academic providers was often undertaken; however, the outcomes were mixed. Government state-level health agencies noted that commercial providers were frequently unaware of the needs and working environment of front-line health services. Local level health services reported similar experiences with consultants (see Appendix I).

The consultations also revealed that evaluation capacity within government state-level health agencies had several skill and data deficits – this impeded the desired operation of their evaluation models. Implementation scientists and health economists were specifically raised as examples of skills that were in short supply. While NSW was embarking on recruitment of health economists to sit within one of the state’s evaluation agencies, in WA, attempts to recruit health economists had been unsuccessful due to a lack of qualified applicants.

Access to appropriate data was also cited as a problem that limited the effectiveness of evaluation. Patient reported outcome measures (PROMs) and patient reported experience measures (PREMs) were sought after outcome measures but rarely included in the clinical trial design and not available in routinely collected datasets. Another data problem identified was the lack of data that recorded patient transitions between primary and acute care.

During the consultations, government state-level health agencies noted problems with new healthcare technologies entering the system without evidence of effectiveness. Examples were provided of cutting-edge (and expensive) surgical equipment being introduced without evidence of comparative or cost-effectiveness. The consultations identified that, at times, opinion leaders in the health system...
would lobby politicians for the introduction of a new technology – often without evidence of cost-effectiveness.

A case study example of this problem was obtained from the literature involving the introduction of three endoscopic anti-reflux procedures into practice. These procedures had no evidence of effectiveness but were widely adopted into clinical use through the influence of opinion leaders. As evidence of harm started emerging, all three procedures were removed from use.\(^{37,38}\)

A further problem raised in the consultations with government state-level health agencies was that evaluation of the implementation stage of a technology was often overlooked. For example, a technology, say a medicine, might have evidence of cost-effectiveness, but the evidence of how that technology is implemented might be lacking, and the lack of monitoring post implementation restricts assessment of clinical efficacy and ongoing cost-effectiveness.

An example from NSW\(^{27}\) highlights the importance of monitoring implementation. For patients experiencing ischaemic stroke, clot dissolving formulations have been shown to be cost-effective when administered within a small time-window.\(^{27}\) However, the need for specialised screening and delivery of this therapy means that patients must be treated soon after the stroke event in an Acute Stroke Unit.\(^{27}\) To ensure access to effective medication, a model of care was tailored to ensure paramedics fast-tracked suspected stroke patients to hospitals that could provide this specialised therapy. This is an example of the implementation of a model of care (fast-tracked ambulance transport) to increase access to cost-effective therapy (clot dissolving medication). In this example, the model of care for implementation was designed locally, and its deployment was then costed and evaluated at the local level.\(^{27}\)

2.1.3 Local level decentralised evaluation models

Few examples were found of systematic approaches to building local level capacity in the evaluation of healthcare, which is different to individual evaluations undertaken by healthcare organisations – which are done frequently.

2.1.3.1 Metropolitan example: Sustainability in Health care by Allocating Resources Effectively (SHARE)

Monash Health, in south east Melbourne, provides health services across more than 40 sites. The health service adopted the ‘Sustainability in Health care by Allocating Resources Effectively’ (SHARE) Program in 2009\(^{39,40}\), to guide evaluation of healthcare at the local level. The SHARE program is based on the UK’s Medical Research Council guideline for complex interventions and aims to support evidence-based systems and processes for decision making about disinvestment.\(^{39,40}\)

The SHARE approach took an organisational infrastructure approach rather than focus on individual projects. The body of work from this program has provided insights across many domains related to decision making, particularly around disinvestment. These insights included: barriers and enablers to evaluation, implementation and disinvestment; how to implement disinvestment strategies; checklists for implementation; and processes for disinvestment.\(^{40}\)

2.1.3.2 Regional example: A Clinical Trials Support Unit (CTSU) to assist local level evaluation

The Hunter Medical Research Institute (HMRI) Clinical Trials Support Unit (CTSU) was designed to meet the needs of three local health districts and the Hunter New England Central Coast Primary Health Network (HNECCPHN). The platform is financed from the NSW Government’s Medical Research Support Program (MRSP), revenues from commissioned evaluation services (i.e. cost recovering) and ad hoc grants from state, Commonwealth and philanthropic sources. The CTSU started with the provision of statistical skills but grew, due to demand, to include further specialist services in epidemiology, biostatistics, health economics, IT and clinical trials design. The service is available across NSWRHP and is applied to the needs of health services rather than academic pursuit.

The health economics resources specialise in applied economic evaluations, including: cost studies, cost-utility, cost-effectiveness and cost-benefit. The unit also conducts broader ‘impact assessments’ using a health-focussed, internally designed, framework that measures and encourages research translation and research impact.\(^{41}\)

The CTSU has numerous examples of locally evaluated models of care\(^{2,3,42-46}\) – examples of local level evaluations are provided for innovations in aged care (Box 3) and paediatric care (Box 4).
The local problem: Residents from Aged Care Facilities (ACFs) were being transferred, unnecessarily, to hospital emergency departments (ED). These transfers required resources for ambulance journeys, stays in ED and increased stress on patients who may have been better treated in-situ.

Local context: The demographics of the area covered by Hunter New England LHD (NSW) cover statistical areas (see Figure 2) with some of the highest proportions of older people in Australia. In this setting, innovations are needed to reduce avoidable utilisation of acute care by this demographic group through prevention activities or better targeted care models.

The innovation: A locally designed intervention to better manage ACF patients with support from telephone triage. The intervention was designed to reduce avoidable ED presentations by residents in ACFs.

The local evaluation: Routinely collected data was analysed to reveal that the avoided ED presentations attributable to the intervention as well as changes to ambulance transport. A qualitative study examined patient and provider experience while an economic evaluation valued the resources expended and saved because of the intervention. The intervention was associated with 981 avoided ED presentations annually, with consequential cost avoided to health services of $920,000 per annum.

The local problem: Bronchiolitis is a lung infection in infants. For hospitalised patients in this cohort, usual care typically focuses on managing respiratory distress and oxygen levels (hypoxia). Oxygen is delivered to patients through low-flow cold wall oxygen via infant nasal cannulae. Published studies indicated HFWHO may be a beneficial alternative to low-flow oxygen. However, no randomised trial evidence existed. Local clinicians needed evidence on HFWHO’s effectiveness and cost.

Local context: The John Hunter Hospital sits in the Hunter New England Local Health District with a catchment of about 900,000 people. The John Hunter Children’s Hospital is co-located with the adult Hospital. The innovation: Usual care using low-flow cold wall oxygen, had been delivered in Australia for more than 20 years. The innovation was to assess HFWHO amongst children aged under 2 years presenting to emergency or admitted to the hospital with a diagnosis of moderately severe bronchiolitis between July 16, 2012, to May 1, 2015.

The local evaluation: A clinician-led randomised controlled trial (Australian New Zealand Clinical Trials Registry, number ACTRN12612000685819) was conducted with an economic sub-study. The trial’s primary outcome was ‘time to weaning off oxygen’: no evidence of a difference between usual care and HFWHO was found for this outcome. However, based on secondary outcomes, and compared to usual care, HFWHO was associated with significantly fewer infant admissions to intensive care, with substantial cost savings, the intervention resulted in approximately $165,000 costs avoided over the trial period. This example demonstrates the value of innovations developed by front-line clinicians and the value of including an economic perspective.
2.1.4 Feedback from consultations with health services on evaluation models

Ninety-six percent of the health services consulted reported a view that evaluation was essential or important to decision making. All participants (100%) said that evaluation outcomes (evidence) influenced decision making within their organisation.

Most (93%) organisations could undertake some evaluation in-house. A few organisations reported high levels of evaluation capability. For example, one local level health service in NSW identified a wide range of accessible expertise because they directly employed people for study design, statistics, health economics, and informatics. This health service justified these positions because ‘research’ is a component of the funding formula for public hospitals. The Independent Hospitals Pricing Authority (IPHA) lists teaching, training and research as one of six patient services and describes research as: the activities undertaken in a public health service where the primary objective is the advancement of knowledge that ultimately aims to improve consumer and patient health outcomes and/or health system performance.47

Other health services reported using resources provided by universities and Medical Research Institutes (MRIs). The previous description of the HMRI CTSU is an example of an MRI provided evaluation service. Other evaluation expertise resided in health services’ financial departments (e.g. in business intelligence units) with a focus on ‘cost’ or other ‘service delivery’ measures to report against key performance indicators.

The consultations identified plans to improve access to evaluation expertise. New evaluation centres were being co-developed in AHRTCs with university and health service affiliates. In QLD, university evaluators with specialist evaluation skills were co-located with health services in major Brisbane hospitals. The combination of ‘co-location’ of evaluation expertise and ‘co-design’ of evaluations with health services was identified as being important. The majority view during the consultations was that these partnerships offered great promise to build the evaluation potential of health services. Dissenting views did not dispute the promise of these partnerships, but they clarified that academic research priorities and interests must not direct the research and evaluation undertaken by health services.

Figure 3 How is healthcare evaluation done in your organisation? What resources do you have? (Proportion of health services mentioning each issue)
Private sector consultants were often contracted to undertake evaluations by local level health services. There was a range of views from local health services on the value for money delivered by private sector contractors - these views were similar to those mentioned by government state-level agencies. Some health services expressed concerns about the need to invest considerable time explaining how front-line services worked - including briefings on the available datasets; how health's data systems worked; and the type of outcomes that were important in health. Consultants sometimes needed to be reminded that outcomes needed to include more than just 'cost'.

However, consultants were seen by one organisation as a means to overcome internal capacity constraints in evaluation. Others noted that they liked consultants’ focus on what they were paid to do and their timeliness.

Some health services were concerned that the use of consultants caused a leeching of evaluation skills from health and had a strong preference to keep evaluation skills ‘in house’.

Participants commonly identified that local health services were starved for evaluation staff and evaluation skill-sets (81% - said that a lack of evaluation staff and skills were a barrier to better evaluation in their organisation).

Overall, the preference expressed by most health services was an evaluation model that built internal capacity (74% said they wanted to develop internal evaluation capacity; 56% said they wanted more internal capacity in health economics and 48% said they wanted more capacity in implementation). A mechanism to build this capacity was raised in multiple consultations – the participants said AHRTCs and CIRHs can provide a mechanism to better connect with affiliated universities and MRIs to address local evaluations.

![Figure 4](image-url)  
*Figure 4* Would your organisation be interested in developing internal evaluation capacity?  
(Proportion of health services mentioning each issue)
2.1.5 Learning from international expertise

2.1.5.1 Principles for healthcare evaluation

The WHO suggests that the development of evaluation expertise should be done gradually by identifying individuals with a capacity for accessing and understanding HTAs and making these individuals the “focal points” of HTA. These focal points could be positioned in a non-profit agency, university, government department or research organisation with an interest in developing capacity in assessing health technologies.

From a design perspective, international leaders have identified fifteen principles that should be in an evaluation framework, including how the evaluation should contribute to decision making (Table 1).

2.1.5.2 Saving time and cost: mini evaluations of healthcare

Canada, Norway, Italy, Denmark, Sweden, Spain and Switzerland all support local level evaluation services by regions, cantons, or similar sub-national geographical areas. In these countries mini evaluations are conducted to save on time and cost. Known technically as ‘mini-HTAs,’ they are short reports that summarise a health technology with regard to its conditions of use (e.g. patient cohorts), as well as evidence-based health and organisational consequences. Mini-HTAs are checklist based and cover core concepts such as effectiveness, safety, cost, ethical acceptability and organisational implications of the technology. They include a brief review of the literature and can include expert opinion. While faster to prepare than a full evaluation, they have less rigour – a factor which must be balanced against shorter preparation time and lower cost.

2.1.5.3 Budget Impact Statements

Economic evidence is useful for identifying whether a technology or model of care is cost-effective. However, this is not the same thing as identifying whether it is affordable to healthcare providers. Decision makers need to know the budget consequence of their decisions. Budget Impact Statements are a means to understand the affordability of a healthcare decision. They identify the financial implications of a technology or model of care for a given service provider, for a specific population and over a specific time frame. While Budget Impact Statements are used by the Australian PBAC and MSAC, the guidelines for their construction are mostly international from France and the International Society for Pharmacoeconomics and Outcomes Research (ISPOR).

Table 1 (see following page) Principles for a best-practice framework to evaluate health technology and models of care.

<table>
<thead>
<tr>
<th>THEME</th>
<th>EVALUATION PRINCIPLE</th>
<th>DESCRIPTION OF EVALUATION PRINCIPLE</th>
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</thead>
<tbody>
<tr>
<td><strong>Structure of evaluation platform</strong></td>
<td>1. Goals and scope of the evaluation service should be both explicit and relevant to its use.</td>
<td>Define the questions for the evaluation to answer and explain how it will support downstream decisions about the technology. All stakeholders should be included in this stage.</td>
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<td>2. Evaluations should be unbiased</td>
<td>Evaluations are best conducted independently of the entity that ultimately will adopt, fund and implement the technology. The evaluation needs to be transparent.</td>
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<td>3. Evaluations should include all relevant technologies</td>
<td>All health technologies, whether existing or new, should be potential candidates for evaluation. While available resources may force choices about when an evaluation is conducted, no technology should be above evaluation.</td>
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<td>4. A system for setting priorities</td>
<td>As there will be insufficient resources for assessing all health technologies, a system is needed for prioritising what will be evaluated.</td>
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<tr>
<td><strong>Evaluation methods</strong></td>
<td>5. Appropriate methods for assessing costs and benefits</td>
<td>Evaluation should be based on rigorours, evidence-based methods that are reflective of needs.</td>
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<td></td>
<td>6. Consider a wide range of evidence and outcomes</td>
<td>While high quality RCTs are regarded as a gold standard for clinical evidence and establish efficacy and are a component of causality; they may not always be useful for evaluation due to cost, time, and relevance to the population (generalisability). Evaluations should use broad definitions of value and consider patient preferences, quality, equity, efficiency and acceptability among a wide range of stakeholders.</td>
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<td>7. A societal perspective</td>
<td>A broad societal perspective should be used in evaluations. Funder perspectives are comparatively narrow and may not report benefits or costs borne by others outside the health system.</td>
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<td>8. Include sensitivity of the analysis to individual variables and uncertainty around the outcome</td>
<td>Sensitivity analysis: Aim: to assess which variables have the largest impact on the outcome. Uncertainty analysis: Aim: to quantify the uncertainty around the outcome, e.g. an uncertainty interval around the primary outcome.</td>
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<td></td>
<td>9. Evaluations should reflect variation in generalisability and transferability</td>
<td>Limitations in generalisability and transferability result from differing patient cohorts, geography, socio-economic profiles, cultural backgrounds, genetic factors, disease burdens and healthcare systems, i.e. local context.</td>
</tr>
<tr>
<td><strong>Evaluation processes</strong></td>
<td>10. The evaluation should engage all stakeholders</td>
<td>Engagement of stakeholders throughout the entire evaluation process is essential to i) improve the quality by allowing feedback and comment) as well as ii) increase broad acceptance of the evaluation outcome. Broad engagement with stakeholders is standard in the UK and enshrined in law in Germany.</td>
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<td></td>
<td>11. All available data should be sought</td>
<td>Evaluations need to be informed by data, whether published or not. For example, NICE requests technology developers to release confidential data if it is central to a decision.</td>
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<td></td>
<td>12. Implementation of evaluation outcomes must be monitored</td>
<td>Monitoring to ensure high value (cost-effective) technologies are adopted and their use is optimised is just as important as implementing strategies to reduce or reverse technologies that are found to be low value.</td>
</tr>
<tr>
<td><strong>Evaluation and its input to decision making</strong></td>
<td>13. Evaluation decisions should be timely</td>
<td>Evaluations can take substantial time to prepare. Nonetheless they should be conducted when they can have input into key decisions and they should be kept up to date – meaning regular revisions, e.g. NICE reviews decisions every three years. Some European countries invest in mini-evaluations as they require less time and fewer resources to prepare.</td>
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<td></td>
<td>14. Evaluation outcomes must be communicated appropriately</td>
<td>The evaluation must be reported so that it meets stakeholder needs. One solution is to develop a multi-layered reporting model that presents results from both narrow and societal viewpoints.</td>
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<td></td>
<td>15. Transparency between the evaluation and the decision</td>
<td>Transparency around the decision to implement or disinvest in a technology should be accompanied by an explicit threshold of risk-benefit or cost-effectiveness where the evaluation influences the decision, e.g. the threshold where the technology is deemed cost-effective. NICE thresholds for interventions – an incremental cost per quality-adjusted life-year (QALY) ratio greater £30,000 per QALY are unlikely to be funded.</td>
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</tbody>
</table>
2.2 GAPS IN THE EVALUATION OF HEALTHCARE

This section discusses some of the major gaps in the evaluation of healthcare as well as a range of barriers that were raised during the consultations with health services. Central amongst these barriers were: a lack of research and evaluation skills in the health services workforce; a lack of funding for evaluation activities; inconsistent understanding amongst stakeholders of how evaluation can assist decision-making; and varying support across stakeholders for the evaluation of healthcare technology and models of care.

2.2.1 Waste in the health system can be addressed through better healthcare evaluation

Many health technologies provide significant benefits to patients, healthcare providers, governments and other payers of healthcare. However, some health technologies may not deliver cost-effective outcomes or may not deliver any benefit at all. The problem for governments and health providers is to make decisions about the use of new health technologies and models of care based on effectiveness, cost, public expectations, equity, and affordability.

Waste in the Australian health system is designated by variation in the prices paid for health interventions; the over, under and misuse of clinical interventions; the use of technologies that deliver little or no health benefit; variations in safety and quality; and the provision of non-guideline conforming care.

While some reports estimate that up to 40 percent of the healthcare budget is wasted, a Productivity Commission paper concluded productivity in Australian healthcare could be improved by an estimated 20 percent through better spending decisions. Based on Australia’s $170 billion annual investment in healthcare an estimated $34 billion of health spending (2016 AUD) per annum, could be better spent. This is money that could be: reinvested to improve access to cost-effective healthcare; address inequity; used to purchase emerging cost-effective healthcare interventions; or used to invest in cost-effective health prevention / promotion strategies. An understanding of core issues on effectiveness and cost (i.e. evaluation) can help determine whether healthcare spending is being wasted or whether it is cost-effective.

Governments could ignore waste in the health system and continue to fund healthcare with the hope that at least some component of spending will produce meaningful health outcomes. Funding this spending could be via higher taxes or cuts to other areas of government responsibility; both choices would provide headroom for more health expenditure. These policy choices are not just politically unpalatable, they embed inefficiency in the system.

There is an alternative, efficient, solution. That is, to use healthcare evaluation to maximise the likelihood that healthcare spending is both effective and efficient and that waste in the system is minimised.

This recalibration of priorities requires a fundamental shift in policy and practice to minimise the use of inappropriate low value care and increase the use of high value, cost-effective care. This direction requires embedding evaluation principles across the healthcare system.

2.2.2 Addressing low value care through better evaluation

Low value care is a specific category of ‘waste’ in healthcare that offers little or no benefit to patients or might cause harm. Its existence in the healthcare system represents forgone resource usage that could be otherwise deployed on cost-effective prevention, management or treatment.

An example of low value care is surgical treatment for lower back pain; this is an intervention that lacks compelling evidence on efficacy. There are numerous examples across healthcare but one published report indicated that in about half (51%) of the investigated placebo-controlled surgery trials, the surgical intervention had no patient outcome advantage over placebo; while placebo generally came with a lower risk of adverse events.

While better evaluation is not the only remedy for low value care, it offers two distinct strengths. Firstly, evaluation can be a gatekeeper – keeping low value care out of the health system. If health innovations such as procedures and models of care are evaluated in initial trials, the subsequent analysis of data should provide information on both efficacy and cost-effectiveness. This information allows decision makers to determine whether the innovation should, or should not, be allowed into the health system.
Identifying low value care before it is introduced to the healthcare system is a logical and cost saving step that saves resources being expended on providing low value care. It also can save additional future expense needed to reverse the decision and to compensate those who may have been harmed by it.

Secondly, evaluation can help verify whether existing technology used in healthcare should be retained. Many health technologies entered the healthcare system without any evaluation. This has been a recognised problem in Australia – evidenced by the number of items listed on the MBS with unknown or uncertain cost-effectiveness. Sometimes existing healthcare was evaluated, and at that time shown to be cost-effective, but over time has been superseded by better treatments or made redundant due to changing patient needs.

Studies have looked at the extent of existing low value care in health: estimates suggest that up to 40 percent of established health practices have evidence to support disinvestment. The opportunities for investigating candidates for reversal are enormous. In a single Australian study, Elshaug identified 156 possibly ineffective or harmful practices that were reimbursed from public funds through Medicare. Such practices have been flagged as possible low value candidates. They should be formally evaluated and, if appropriate, removed from the healthcare system.

2.2.3 More economics is needed in evaluations

The field of economics adds a different perspective to evaluation through the consideration of the resources required by a health technology or model of care. Measurement of resource use allows information to be reported to decision makers on the relative ‘value’ of a technology or model of care. A lack of skills to undertake economic evaluations means that they are frequently omitted from local level evaluations.

2.2.3.1 Including cost in evaluations

Standard economic evaluation techniques that incorporate both outcome and cost measures include: cost-benefit, cost-consequence, cost-utility, cost-effectiveness, or cost-minimisation analyses. Omitting the consideration of cost in healthcare evaluations can lead to higher healthcare expenditure. One contributing factor identified by the Commonwealth Fund for high prescription drug expenditures in the US was a lack of cost-effectiveness evidence that helped place upper limits on reimbursement values.

Australia already has explicit guidelines on the consideration of cost when evaluating some types of healthcare, such as medicines. There is growing need to include an economic evaluation to provide decision makers with information on the cost and consequence of all new health technologies and models of care.

2.2.3.2 Including economic outcomes in evaluations

Economic evaluations usually include an outcome measure that is related to the expected consequence of being exposed to the intervention. The use of Quality Adjusted Life Years (QALYs), is a favoured outcome because it is calculated using validated tools based on multi-attribute utility instruments (MAUI).

The advantage of using QALYs as an outcome measure is that they can be used across a spectrum of interventions, from infections through to chronic disease. Hence, the use of a common outcome facilitates comparison of cost-effectiveness across diseases.

International evaluation organisations tend to prefer the use of QALYs, for example, NICE in the UK preferring the derivation of QALYs using the European Quality of Life instrument EQ-5D.

However, a fundamental assumption for the use of QALYs in decision making is that they reflect outcomes valued by society. That is, the utility instruments used to generate QALYs reflect the broader preferences and views of society as to the components of quality of life.

This assumption has been questioned when evaluating complex models of care, such as integrated care, because QALYs do not reflect the broad range of patient, provider and other societal benefits that could be generated from complex interventions. For example, the inclusion of patient and provider experiences with the care being received / delivered. Hence, other outcome measures could be considered for use in these evaluations and included in the design of the trial to ensure appropriate data is collected.

2.2.4 Equity needs to be explicitly considered in evaluations

The World Health Organization (WHO) defines equity as the absence of avoidable or remediable
differences among groups of people, whether those groups are defined socially, economically, demographically, or geographically. Therefore, inequity in healthcare is the existence of differences in health between groups of people where the difference is unfair and avoidable. Groups of people could be distinguished by: urban versus regional, rural and remote geographical locations; Indigenous status; ethnicity; access to resources; gender; age or other determinants of health.

Analyses using cost and QALYs as the outcome measure will provide information on the efficiency of an intervention, but the analysis will not inform whether the intervention was equitable. For example, if equity was considered in a decision-making scenario, it might mean economic efficiency (and optimal health gains) were sacrificed through a fairer allocation of resources: it may be less expensive and more efficient (more QALYs per unit of cost) to provide a health intervention in a wealthy urban area, than in a sparsely settled remote township. Nonetheless, a decision maker might forgo efficiency to address equity by ensuring the health needs of people in remote locations are addressed.

In healthcare evaluations, particularly economic ones, there has been a focus on including equity through easily quantifiable measures, hence the focus has been on use of healthcare resources rather than access to them. There is an opportunity to improve evaluation through better and more explicit consideration of equity.

2.2.5 Complex care models mean complex evaluations

Health challenges from increasing chronic disease and the health needs of ageing populations have driven demand for alternative approaches to delivering health care. Health services are approaching many diseases through more comprehensive, and complex, interventions. Integrated care is an example of a complex intervention. The UK Medical Research Council (MRC) defines a complex intervention as one that has a:

- Number of interacting components within the experimental and control arms;
- Number and range of behaviours required by those delivering or receiving the intervention;
- Number of groups or organisational levels targeted by the intervention;
- Number and range of outcomes;
- Degree of flexibility or tailoring of the intervention permitted.

Evaluating these interventions requires consideration of an appropriate study design, outcomes, sample and control group. The evaluation of integrated care is complex and evaluation techniques are still developing.

While economic evaluations are considered to be essential for decision making, in integrated care situations they have been criticised for being methodologically weak, lacking suitable comparators, and using outcomes (such as QALYs) that do not adequately reflect the complexity of process measures, or intermediate and final outcomes from integrated care.

The increasing interest amongst health services in implementing integrated care presents an opportunity for the development and sharing of knowledge about better methods for the evaluation of these care models.

2.2.6 Better techniques and skills are needed to evaluate health prevention

Health prevention refers to policies, practices and models of care that aim to avoid disease or at least mitigate its impact – examples include: regulations on wearing seat belts; age-restrictions on the sale of cigarettes and alcohol; and campaigns on healthy lifestyles; and cancer screening.

The Productivity Commission has written on health prevention in Australia and notes that despite the potential for significant returns from investments into preventative healthcare, the field suffers from a relative lack of funding.

The economic rationale for investing in prevention is that individuals are unable to fully appreciate (i.e. value) the longer-term benefits to themselves and society from making healthier choices. As such, there is a case for government to invest in health prevention activities to influence individual behaviours. The benefit of health prevention accrues to the individual and society. For example, if public health programs to encourage healthier food choices and exercise keep people at healthy weight levels, those individuals benefit from additional years in better health. Society also benefits from lower costs of treating and managing weight-related chronic disease.

Despite individual and societal benefits from health prevention, compared to the OECD average, Australia spends relatively little on prevention activities. One of the reasons for this lack of
investment is the lack of evidence on the cost-effectiveness of prevention programs.\textsuperscript{1}

This presents an opportunity for local level evaluators in health services, universities and MRIs to develop, not only skills in general evaluation, but specific expertise in evaluating prevention policies and interventions.

2.2.7 Improvement is needed in horizon scanning

The Health Policy Advisory Committee on Technology (HealthPACT) oversees a national program of horizon scanning to inform health services in Australia and New Zealand about emerging health technologies. HealthPACT focuses on prevention and rehabilitation, medicines and devices, medical and surgical procedures, and the systems within which health is protected and maintained.\textsuperscript{24}

HealthPACT provides an opportunity to share information and evaluate emerging technology and their impacts on health systems.\textsuperscript{24} In Australia, HealthPACT represents Australian state and territory health departments, the Commonwealth Department of Health, MSAC, the Department of Veterans’ Affairs (DVA), and the Therapeutic Goods Administration (TGA).

The broad objectives of HealthPACT include i) the early identification and assessment of new and emerging healthcare technologies that have national relevance, and ii) a focus on technologies that have the best potential for generating impact, and iii) identifying opportunities for disinvestment in healthcare technology. HealthPACT considers the social and ethical implications of existing and emerging health technologies.\textsuperscript{24}

Despite the activities of HealthPACT, a gap remains in the horizon scanning of emerging health technology. A review of Australia’s horizon scanning processes concluded that they needed improvement.\textsuperscript{25} Specifically, new technologies still enter Australia without the assessment or prioritisation that should occur under the official horizon scanning model.\textsuperscript{25}

Given the front-line exposure of local health services to emerging technologies, there is an opportunity to capitalise on local-level ‘data collection’. Health services across Australia could form a network for the collection of information on emerging technologies and models of care brought into local services as well as those developed locally.

2.2.8 More stakeholder engagement in evaluation is needed

The inclusion of stakeholders in the process of healthcare evaluation is part of best practice.\textsuperscript{28} Stakeholders in an evaluation include decision makers, patients, the broader community, industry, policy makers and private health insurers.

In Australia, national evaluation bodies such as PBAC and MSAC utilise consumer participation in decision making. This was recently extended in 2017 when the Australian Government’s Department of Health formed a consumer committee to work on healthcare evaluation decisions, including the public funding of new technologies. However, the role of the committee is contained to the activities of the PBAC, MSAC and the Prosthesis List Advisory Committee (PLAC).\textsuperscript{76} Despite this national initiative, there remains a gap around the place, form and purpose of consumer engagement in the evaluation of health technology and models of care at the local level.

This gap is an opportunity. The development of local level evaluation capability and capacity could be a mechanism to involve local communities and stakeholders in both prioritisation and the evaluation processes for local innovations. Further, if strategically planned, local level community participation in healthcare evaluation could provide a pool of individuals from which members for state and national panels could be selected. Stakeholders could also be helpful to disseminate the evaluation decision to the public and, importantly, to communicate the reasoning behind the decision to adopt, retain or disinvest from a healthcare technology or model of care.\textsuperscript{77}

2.2.9 Implementation of evaluation outcomes is often neglected

Deriving value from the resources applied to the evaluation of healthcare is dependent on decision making that utilises the outcomes of the evaluation. To generate impact from healthcare evaluation the outcomes must be considered by those making decisions on technology or models of care adoption, retention and disinvestment.\textsuperscript{78}

Hence there is a need to ensure that the evaluation outcomes are understood by decision makers and this means they must contain useful and relevant information. A model of care might be cost-effective compared to its alternative but implementing that model of care might be outside the health service’s
budget – hence it is not affordable. Budget Impact Statements have been identified as an adjunct to a standard economic evaluation, to increase the relevance of evaluation outcomes to the decisions healthcare managers need to make.\textsuperscript{79}

Other techniques to improve implementation include: ensuring the evaluation is conducted for a real and prioritised need; documenting evaluation outcomes (e.g. information used to decide whether to invest or disinvest); and ensuring politicians and healthcare decision makers are aware of how to use the evidence that is generated from healthcare evaluation.\textsuperscript{78,80}

The importance of implementation of evaluation outcomes is identified in the literature\textsuperscript{28,78,79} but there remains a gap in how to best ensure evaluation outcomes play a role in decision making. Understanding the barriers and enablers to implementation could assist this process. Evidence emerging from the UK suggests having a strategic plan to guide translation and implementation increases the likelihood of generating impact.\textsuperscript{80} Similarly, engaging potential end users, such as policy and decision makers, in the design, research and evaluation process increases the likelihood of impact.\textsuperscript{80}

2.2.10 Feedback from consultations on gaps in the evaluation of healthcare

From the viewpoint of local level health services, three broad gaps were identified: 1) gaps in the types of evaluation needed by local level health services; 2) gaps in the data needed to perform evaluations; 3) gaps in the capacity (skilled people) and resources (finance) of health services to undertake local evaluations (Box 5).

**BOX 5: Comments from consultations: barriers to evaluation**

1. **A lack of data and data sharing**
   - Need better baseline data.
   - Better sharing of data [for evaluations] and evaluation outcomes. Need to understand why a technology was / was not approved.
   - Major problem is data – don’t have resources for primary data collection. Need an audit system to see if implementation is working to allow improvement.
   - Better sharing of data / evaluations. Would like to see health services share evaluation data as well as evaluation outcomes.

2. **A limited workforce with evaluation skills**
   - More staff with evaluation skills - statistics, health economics, study design, mathematics.
   - Finding staff with the right skills is a problem.
   - Need the right evaluation skills – need an operational evaluation department within the service.
   - [We are] at capacity in evaluation and would prefer to use own evaluators rather than engage consultants.
   - All staff need more exposure to evaluation.
   - Need people who can develop better evaluation models; what is a good evaluation model?
Health services were asked to identify the kind of evaluation they would like to conduct (Figure 5). A majority indicated that they would like evaluation to target health service needs (74%). This correlates to the direction of major health and medical research funders at the state and Commonwealth level who are prioritising projects led by health services. It also reflects sentiments expressed in the interviews that some evaluators who sit outside health services had priorities and objectives that did not align with the needs of health (see Box 1 page 15).

High on the list of the evaluation needs raised in the consultations included better monitoring and evaluation of outcomes from decisions (67%). It was suggested that little was known about what happened after a healthcare decision was made, for example, a decision to introduce new surgical technology. Was the technology introduced? Was it used appropriately? Did the anticipated patient outcomes or experiences materialise?

The consultations identified barriers to evaluation, many of which reflect gaps in evaluation capability (skilled workforce), capacity (adequate workforce) and resourcing (funding). Two central gaps were the availability of staff with the required evaluation expertise (81%) and the (unaddressed) need to include evaluation when a project is first introduced (63%) (Appendix II).

One participant believed their organisation had a high proportion of staff with ‘evaluation skills’ but questioned whether these were the ‘right’ evaluation skills – hence an audit of skills was requested.

Workforce culture was noted (52%) as a gap. This was discussed in terms of ‘top-down’ and ‘bottom-up’ support for the use of evaluation and evidence in decision making.

Top-down support refers to the commitment of senior management and clinicians to use evaluation data. Bottom-up support refers to the wider health workforce, particularly front-line health workers.

In the consultations, the issue raised by some participants was weak ‘bottom-up’ support for evaluation. This was not described as being anti-evaluation, rather, a lack of resourcing and time meant front-line health staff saw evaluation as a low priority. Managers and senior clinicians were generally believed to be supportive of the use of evaluation and evidence in decision making.

Figure 5  What evaluation would your organisation like to do, but cannot now? (Proportion of health services mentioning each issue)
2.3 Strategies and solutions

Strategies to improve local level evaluation will only be useful if local level health services want to use the evidence that is generated. This issue was tested in the consultations and generated a large affirmative response. Ninety-eight percent noted that evaluation was important or essential to decision making. Further, in all (100%) consultations it was indicated that evaluations of healthcare do influence decisions made within their health service.

Compared to the effort Australia places on the evaluation of pharmaceuticals, relatively little attention has been paid to developing a systematic approach for evaluating health services delivered at the local level.

In terms of evaluation strategies, Australia can learn from European experiences. The European Union (EU) has invested in the development of HTA models to help newer members of the Union develop evaluation expertise. Consequently, there is substantial literature from the EU on evaluation frameworks. Drummond’s work has been cited above, but others have written specifically on the short-, medium- and long-term strategies to develop and implement healthcare evaluation models.

According to Wild et al. (2017) two broad aims for establishing a healthcare evaluation strategy are:

1. To establish a foundation for using evidence in decision making about the introduction, retention and disinvestment of health technology and models of care;
2. To ensure healthcare evaluation is an accepted and routine aspect of decision making within the healthcare system.

To support these aims several generic strategies could be undertaken to improve the uptake and utilisation of healthcare evaluation. These strategies include: the optimisation of the utilisation of evaluation outcomes; better understanding of the required human resources and capacities; appropriate financing of the evaluation model; and ensuring the implementation of the evaluation strategy. Discussed below are suggested strategies to address each of the evaluation gaps identified in the previous section.

2.3.1 Optimise the utilisation of evaluation outcomes

Understanding of the enablers and barriers to utilisation and implementation are imperative. The timely provision of information that is needed by decision makers is one enabler. The evaluation outcomes should be of high quality, reliable and relevant to the decision to be made. Barriers to utilisation include poor communication of the evaluation processes and outcome; policy and decision makers who do not understand the need for evidence in decision making; evaluators that do not understand the needs of decision makers; and lack of managerial interest in changing existing decision making cultures.

2.3.2 Understand human resources and capacity: existing and future

At the decision-making level, this requires a culture amongst decision makers to accept and act on evidence from an evaluation team, rather than, for instance, from a health technology supplier. Evaluation teams need people with the range of skills required to perform the identified healthcare evaluation.

Steps to understanding resources and capacity could include:

- A census of existing evaluation capacity within health services, government bodies, academic and affiliated institutions that can provide the required evaluation skills, and a willingness of these services to be focused on the needs of health services;
- Training and professional education. Modules of healthcare evaluation could be incorporated into vocational and university training for programs in hospital management and all health sciences. This would benefit from an accredited evaluation-focused curriculum for university, vocational and professional courses;
- Awareness raising on the value of healthcare evaluation amongst all stakeholders including politicians, decision makers and the community;
- Collaboration and information sharing at the regional, state and territory, national and international levels to use existing assessments or to jointly produce evaluation reports. This could include processes to streamline multisite evaluations or comparative evaluations across jurisdictions.
2.3.3 Governance for evaluation
The body undertaking the evaluation should be at arms-length from political, funder and other interest groups who may benefit from a particular evaluation outcome. While independence is required, the evaluating body must also be well connected to all of these stakeholders. This recommendation does not undermine the incorporation of evaluation expertise into local health services; rather, it is a reminder to ensure ‘independence’. Independence could be maintained, for example, by ensuring evaluators embedded within health services have an external, independent check on methods, analyses and reported outcomes i.e. independent risk assessor or auditor.

In Europe, the majority of healthcare evaluation entities are publicly funded but are closely aligned with health authorities and services.

2.3.4 Implementation of the evaluation plan
An analysis of the European experience of implementing HTA across member states has resulted in the development of short-, medium- and long-term strategies. The following table (Table 2) summarises these strategies and was derived from Wild, C. et al. (2017).

2.3.5 Strategies to fill identified Australian evaluation gaps
The table that follows provides a brief overview of possible strategies to address identified gaps in Australia’s evaluation architecture. The gaps can be addressed – relatively easily.

### Table 2 Strategies from Europe: Implementation and operationalisation of a strategy to build healthcare evaluation capacity and capability.


| Examples of short-term strategies | • Audit of capacity and capability in healthcare evaluation  
|                                  | • Employ a coordinator for evaluations (concierge) with clear set of tasks and reporting requirements  
|                                  | • Form a list of pending decisions on technologies or models of care that health services face – prioritise from this list with stakeholder input  
|                                  | • Design governance; communication; handbook to guide the evaluation process (e.g. guidelines on evidence synthesis, prioritisation, information sharing, stakeholder engagement, evaluation methods, reporting, peer review, quality checklist, conflict of interest) |
| Examples of medium-term strategies | • Secure stable funding model for evaluation staffing  
|                                   | • Establish networks of multidisciplinary evaluating teams across the country  
|                                   | • Design and implement evaluation training and awareness  
|                                   | • Formalise dissemination and communication of evaluation data and outcomes |
| Examples of long-term strategies  | • Provide regular ministerial reports to the public on the outcomes of the evaluation strategy, including technologies and models of care that have been introduced, retained and removed. |
### Table 3  List of possible strategies for local level evaluation

<table>
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<tr>
<th>IDENTIFIED GAP</th>
<th>POSSIBLE STRATEGY FOR LOCAL LEVEL EVALUATION</th>
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<tr>
<td>Waste in the health system</td>
<td>A prioritisation policy is needed to support the reduction of low value care (see next point) and increase the use of high value, cost-effective, care.(^{35,56,62}) This requires appropriate evaluation across the healthcare system. A policy option to address this concern might be to expand healthcare evaluation so that it provides an evidence-base on clinical effectiveness and the broader social and economic consequences of adopting new health technologies or models of care.</td>
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<td></td>
<td>For local level health services, the opportunity is to design evaluation models with an explicit goal of supporting the reduction of low value care and encouraging high value cost-effective care relevant to the local level needs.</td>
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<td>Low value care</td>
<td>Processes to reverse the use of low value care are not well defined or implemented. At the national level, a review of MBS items is in progress to remove items deemed to be ‘low value’. Similar reviews have been suggested for drugs that have been listed on the PBS that have not been evaluated (i.e. prior to an economic evaluation being mandated).(^1)</td>
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<td>Although evaluation can help validate disinvestment decisions, there is no agreed mechanism for seeking out, or identifying, existing technologies that should be removed from use,(^9) nor is there the necessary follow up to ensure reversal actually occurs and is maintained.</td>
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<td>Niven et al. (2015)(^{65}) reviewed processes to reverse the use of low value health care in a range of situations. Processes for identifying and ultimately reversing low value care included:</td>
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<td>1. <strong>Selecting a framework for facilitating disinvestment.</strong> The framework should specify processes to identify potential areas of low value care and then prioritise them for further evaluation.(^{65}) Elshaug identified such a process for identifying potentially low value MBS items. The process included:</td>
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<td>- A search of the peer-reviewed literature;</td>
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<td>- Analysis of Cochrane Library databases and NICE “do not do” recommendations;</td>
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<td>- Nominations from clinical and nonclinical stakeholder groups.(^{79}) Other frameworks for disinvestment have been identified such as the SHARE program(^{79,80}) and Choosing Wisely, which is an international sourced program.(^{81,82}) For prioritisation Niven et al. recommended consideration of issues including: evidence, safety (i.e. harmful practices should be eliminated first); health and cost impact of de-adoption; and availability of alternative practices.(^{65})</td>
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<td>2. <strong>Clarification of issues that need further investigation.</strong> An intervention might be ineffective in the general population but effective in a sub-group or within a certain local context.(^{65}) The circumstances under which a technology or model of care is low value need to be understood.</td>
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<td>3. <strong>Disinvestment activities.</strong> The evidence suggests disinvestment is encouraged by: i) publication of the details of low value healthcare practices, ii) active change interventions, iii) removing listing (in the case of medicines) or defunding, and iv) policies to minimise use.(^{65})</td>
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<td>For local level health services, the opportunity is to design an evaluation framework that recognises the need to identify and then evaluate possible low value care. To realise gains from this step, the framework must also link to implementation strategies to reduce low value care, and this implementation must be monitored and evaluated.</td>
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### Identified Gap

**Possible Strategy for Local Level Evaluation**

| Economic perspective | Including an economic perspective in the evaluation of health technologies (in the design phase) assists in making choices between competing uses of scarce resources. Economic perspective requires quantification of the resources – or costs – required to implement the technology or model of care. Depending on the analysis, these costs could include those associated with implementation of the technology as well as downstream costs and costs avoided. An example of the latter would be if a model of care reduced unnecessary visits to emergency rooms (see Box 3 page 21).

Healthcare decision making could benefit from an explicit analysis of the impact of the technology or model of care on the available health budget – referred to as Budget Impact Statements. These statements specify increases or decreases in health service spending over a given budget cycle. As such, they are an extension of the standard economic evaluation and use accounting techniques, as understood by health services. These analyses should take account of the health system where the technology is to be introduced (i.e. the local level), expected uptake of the technology, and displaced treatments (as cost savings). They should also be constructed using simple cost calculators – as used by health services (for relevance and transparency) and be based on parameters that are directly relevant to the healthcare decision maker.

For local level health services, the opportunity is to build capacity and capability in economic evaluations (skilled staff) so evaluations can be incorporated routinely into assessments. The opportunity is also to use existing international guidance on Budget Impact Statements to develop guidelines for local health services.

| Equity | There are a range of techniques to include equity considerations into evaluations of healthcare. These include:

- Subgroup analysis to report costs and health gains for specific groups. For example, subgroup analyses for remote and urban settings or Aboriginal and Torres Strait Islander status. The decision maker can then consider the comparative costs and health impacts across a range of settings and circumstances including distribution of healthcare resources.

- The inclusion of costs accruing to patients such as travel time to appointments and other out-of-pocket expenses. This information provides information on the financial impact for patients when accessing the health technology. Decision makers can then consider this information in context of financial burden and consider whether these expenses might be a barrier to access or inform better location of services.

- The use of equity weights to vary the assumption that the outcome (e.g. health status) is equivalent between population sub-groups. For example, a higher weight (importance) could be given to health gains received by remote living and/or sub-populations.

- The use of ‘cost weights’ as a proxy for equity differences. For example, for an intervention delivered in urban and remote locations, the ratio of delivery cost between the two sites could be used as a proxy for adjusting the cost component in a cost-effectiveness analysis. Specifically, the cost ratio is used to adjust the cost of providing the intervention in the remote setting.

For local level health services, the opportunities are: i) to recognise the importance of considering equity in evaluations of health technologies and models of care; and ii) to ensure knowledge of how to include equity in these evaluations is part of capacity building in evaluation services for health.
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<th>IDENTIFIED GAP</th>
<th>POSSIBLE STRATEGY FOR LOCAL LEVEL EVALUATION</th>
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| **Evaluations of complex care models** | The UK’s Medical Research Council provides detailed advice on the evaluation of complex interventions. This advice includes:  
- Ensure a theoretical understanding of how the intervention will cause change;  
- Awareness that a lack of effect size may reflect implementation failure rather than genuine intervention ineffectiveness; hence a process evaluation is needed to identify implementation problems;  
- Consideration of sample size to account for variability in outcomes at the patient level;  
- A single primary outcome may not make best use of the data, hence a range of measures will be needed that can capture and report unintended consequences;  
- Flexibility in the intervention as it may work better if a specified degree of adaptation to local settings were allowed.  
If economic evaluations are undertaken, the preferred technique for complex interventions is a cost-consequence analysis (CCA). CCAs compare cost against a range of outcomes and provide opportunities to include outcomes such as organisational or practice change. The range of outcomes reported in a CCA can be extensive, and these outcomes will have different levels of relevance to users of this information. The CCA should be accompanied by a process that adjusts the outcomes based on their importance to decision makers. Multi-criteria decision analysis (MCDA) is such a process as it weights outcomes by their importance to different decision makers. Hence complex alternatives such as multiple versions of integrated care (e.g. low intensity versus high intensity care) can be compared using outcomes that are relevant to a specific decision maker.  
For the evaluation of local level health services, the opportunity is to ensure evaluators are aware of developments of complex care models and their evaluation and the relevance for the local setting. This awareness could be part of capacity building in evaluation skills within health services. |
| **Horizon scanning** | Horizon scanning is an early notification system to identify and prepare for emerging health technologies that may have substantive impact.  
There is an opportunity to better coordinate information that is available within front line health services on emerging technologies and models of care. For example, a locally designed innovation to improve treatment pathways for patients with chronic disease could be shared between the local level services and state and national agencies. This information, if appropriately evaluated, might inform broader adoption of decisions in other regions, the state or nation.  
 |
| **Prevention / health promotion** | Although the evaluation of preventative programs is increasing, for example, in fields such as sun protection and physical activity, they are hampered by: i) the lack of routinely collected population data that can be used to construct suitable outcome metrics; and ii) the difficulty in attribution of effect size to specific health programs.  
An opportunity exists to use ‘pre-modelling’ to estimate the available budget for the intervention, including implementation. For a given set of circumstances, pre-modelling can inform the budget that will be available for designing a model of care that will support a cost-effective outcome (i.e. how much can be spent on the intervention and implementation).  
There is an opportunity to increase capability in the evaluation of public health / prevention programs in evaluations conducted at the local level. This provides health services with an opportunity to assess the benefit of prevention strategies within the local context, and to tailor preventative health programs to better meet local circumstances and needs.  
There is also an opportunity for local level evaluations to consider the complexity of these programs and to introduce appropriate evaluation methods (see complex evaluations above) and to engage broadly with stakeholders, including the community.  
The Productivity Commission identified that a barrier to preventative health programs was a fragmented policy environment where multiple stakeholders (e.g. state bodies such as health and education department, as well as Commonwealth departments) were responsible for preventative health interventions. Developing skills in local level evaluations as well as stakeholder recognition and engagement, is an opportunity to build capacity to address this barrier by informing policy development and cross-government collaboration. |
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| A lack of local level capacity and capability in evaluation (identified during consultations) | **Training and education:** Capacity building can be strengthened through training and education to embed evaluation skills in local level health services. Delivery of this content could be through vocational training, universities, professional development or other mechanisms that support evaluation-related upskilling. Determining the content of training and education programs would benefit from a national consensus on curriculum content.  
**Assistance from AHRTCs and CIRHs:** The provision of evaluation services to local level health services could be aided through multidisciplinary evaluation and implementation centres supported by universities and research institutes with AHRTCS and CIRHS. The AHRTCs and CIRHs could also support co-location of evaluation skill sets within health services, as is occurring in QLD.  
**Top-down and bottom-up support:** The consultations identified a need to ensure broad support for the use of evaluation in healthcare decision making. This issue was raised to ensure decision making was not unduly influenced by opinion leaders who may support the introduction of new models of care without recourse to the evidence. Support for evaluation in decision making needed to flow from senior executive managers and clinicians (top-down) as well as from front line health workers (bottom-up). A national, state and territory supported statement on the need for evaluation and evidence in decision making is needed. A tool kit could be developed to help promote the use of evaluation in decision making. |
| Issues with data sharing – (Identified during consultations) | National consensus is needed on how to facilitate sharing of evaluation and implementation data and outcomes between health services, states and territories and the Commonwealth. The consensus must consider existing state-based mechanisms and prioritise ‘curation’ of this data so that information can be easily located and accessed.  
The AHRTCs and CIRHs could play a significant role in the national dissemination of findings from local and state level evaluations |
| A lack of stakeholder engagement (Identified during consultations) | There is an opportunity to include engagement with stakeholders as a component of education and training curriculums in evaluation skill sets.  
Evaluations undertaken at the local level become an entry point for the community to engage with evaluation from the planning stage onward. Apart from consumer and community stakeholders, stakeholders include: health service staff (including clinical departments that may be indirectly affected by a technology or change), policy makers, industry, government, philanthropic funders.  
For local level evaluations, the development of local level evaluation capability is an opportunity to increase engagement with local communities in the research and evaluation process. It is also an opportunity to raise awareness of who might be a stakeholder – for example, apart from patients, stakeholders might include other clinical departments, policy makers at the state and national levels, politicians and opinion leaders.  
Improving community engagement in local level evaluations is an opportunity to raise community understanding about the use of evidence in healthcare decision making. This could be furthered by encouraging public dissemination of evaluation outcomes. |
3. A FRAMEWORK TO SUPPORT THE LOCAL LEVEL EVALUATION OF HEALTHCARE

The Productivity Commission has been calling for improved architecture for healthcare evaluation for many years. With the advent of the AHRTCs and CIRHs across Australia, there is now an opportunity for widespread improvement in the ability to evaluate healthcare at the local level. Evidence from these evaluations can be used to improve healthcare decision making.

A framework for evaluation could help individual health services develop their own expertise that is tailored to be relevant to local needs.
The aim of this component of the project was to develop a framework to inform, guide and promote the evaluation and implementation of cost-effective health technologies and models of care with the aim of optimising patient outcomes. It brings together the reviewed literature and the consultations undertaken by WG3.

### 3.1 AIMS AND METHODS

The framework to improve evaluation at the local level was designed to address:

- Identified aspirations of health services for improved local level evaluation;
- Gaps in local level evaluation identified through a review of the literature and during stakeholder consultations; and
- The various steps of evaluation across the technology lifecycle.

The framework aims to:

1. Encourage prudent adoption of appropriately prioritised new health technologies and models of care that are evidence-based and deliver value for money (i.e. high value healthcare);
2. Build capacity and capability in the evaluation of health technologies and models of care within health services, including preventative health;
3. Prevent the adoption of technologies and models of care that are not cost-effective and support the systematic removal of technologies that do not deliver cost-effective healthcare (i.e. low value healthcare).

The framework was collaboratively designed based on the evidence garnered from the literature, a workshop with national leaders in health evaluations and consultations with health services and government health agencies.

### 3.2 A FRAMEWORK TO SUPPORT THE LOCAL LEVEL EVALUATION OF HEALTHCARE

The framework, in its 'high-level' form, recognises a number of activities or steps in the health technology lifecycle. These activities include evidence gathering, and initial evaluation and research to inform decisions. Under the headings of ‘Decision making’ and ‘Optimisation’, the activities include implementation, scale-up and ongoing monitoring and evaluation.

Specific focus is placed on the identification and evaluation of suspected low value care. The importance of this issue was both raised in the consultations and evident in the literature. The methods for evaluation are not specified in this framework as they need to be tailored to the technology or model of care being evaluated and must relate to the decision that needs to be made (see Box 6 page 41).

The activities are supported by cross cutting themes that reflect many of the gaps identified in this report, such as capacity building and sharing evaluation data and evaluation outcomes. ‘Sharing information’ includes flows of information both horizontally (between health services) and vertically between state, territory and commonwealth agencies with an interest in evaluation data, outcomes and/or healthcare decision making.

The role for ‘data resources’ as a cross-cutting theme is to facilitate better evaluation. While ‘data’ is addressed separately in the national AHRA Data Framework, its inclusion in this WG3 evaluation framework is to explicitly support a learning health system, which is one that uses the best available data to foster innovation, quality, safety and value in healthcare. While a learning health system places patients at the centre of decision making, it advocates the use of readily available data to speed up, or increase agility, in the decision making process.

The framework is presented as a high-level summary (section 3.2.1) and in greater detail (section 3.2.2).
3.2.1 High level summary

This summary (Figure 6) incorporates a health technology lifecycle diagram and explanatory notes. It was developed with reference to a framework published by Frønsdal et al (2010). The diagram was tested, initially, within WG3 and then taken to health services during consultations by authors AS and PR between May and August 2018. Due to consultation time constraints, the lifecycle was only presented to 24 of the 27 health services. Of these, eighty-three percent said the diagram was relevant to their organisation as an ‘ideal’ for evaluating health technology. Seventy-five percent of the consultations resulted in requests for additional information to be included in the diagram – most of this information was added. (Original diagram, pre-amendments, is provided in Appendix II).

BOX 6: Comments from consultations: evaluation methods

1. Considerations in the decision to be made:

... The pragmatic approach recognises that RCTs are not always needed - this approach takes a quality improvement position and is usually associated with operational questions. Operational questions are not often answered by RCTs as evidence is needed in a short time-frame.

... RCTs are not helpful for the evaluation discussion as the type of evaluation must be viewed in context. RCTs have a place in pure medical trials such as drug evaluations. However, RCTs are not the gold standard for many health service decisions.

... [health service name] uses a variety of evaluation methods. Many of these are financial such as ROI or more recently SROI. We want to capture the social benefits from decisions.

... Must look at the organisational bandwidth when evaluating - there is a continuum of ‘evaluation methods’, and which one you select will depend on the technology / model of care that is being evaluated.
Figure 6  Health-related technology lifecycle.

The health-related technology & evaluation lifecycle

END USER ENGAGEMENT: Consumers, health managers & decision makers, clinical health services, policy, government

SKILL SETS and DATA RESOURCES: Evaluation concierge, evidence synthesis, study design, statistics, health economics, implementation science. Access to data to support evaluation (i.e. administrative, routinely collected, linked, RCT, etc.)

CAPACITY BUILDING: Embedding research and evaluation (R&E) in health services – connecting with R&E expertise and developing in house R&E skills

INFORMATION SHARING: Peer-reviewed publications, conferences, information warehouse; facilitate horizontal and vertical information flows to other local areas, states & territories, & Commonwealth

TRANSLATION & SCALABILITY: for cost-effective technologies; a process for translation + scale-up local cost-effective innovations (or disinvestments) across the nation

Cross cutting themes

- Understand need (needs assessment)
- Problem identification
- Priority setting
- Find suitable healthcare models (i.e. import or innovate)
- Evidence synthesis (existing knowledge)

Evidence gathering

Initial research and evaluation

- Health service leadership
- Evaluate the evidence / data
- Conduct trial if necessary (i.e. test in local context)
- Statistics & health economics assessment (Budget Impact)
- Risk assessment
- Evaluation outcome to decision maker

Decision?

Optimisation

- Consider the evidence
- Decision: Adopt, adapt, retain, or remove healthcare?
- Procurement
- Plan for implementing & scale-up

- Implementation and scale-up
- Monitor & evaluate implementation of the decision - technology being used (or stopped) as planned?
- Statistics & health economics assessment - (Budget impact)
- Evaluation outcome to decision maker

- Healthcare model is now obsolete or found to be 'low value'
- Must implement disinvestment strategy - i.e. stop or alter healthcare model

Discontinue low value healthcare

The health-related technology & evaluation lifecycle
Table 4  Explanatory notes for the health technology lifecycle diagram

<table>
<thead>
<tr>
<th>LIFECYCLE STAGE</th>
<th>CONTENT</th>
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<tbody>
<tr>
<td>Evidence gathering</td>
<td>§ <strong>Needs assessment</strong>: Describe, quantify and value (if possible) the demand or need that is associated with the technology or model of care.</td>
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<td>§ <strong>Problem identification</strong>: What is the specific problem?</td>
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<td>§ <strong>Priority setting</strong>: As resources for healthcare are limited, a process to prioritise competing ‘needs’ is necessary. Prioritisation can also be used to facilitate equity in healthcare decisions. The rationale for prioritisation should be transparent.</td>
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<td>§ <strong>Find suitable healthcare models</strong>: Once the prioritised need is determined, evidence can be collected on existing potential solutions to the problem.</td>
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<td>§ <strong>Evidence synthesis</strong>: A synthesis of the existing evidence (e.g. Cochrane review) should consider cost-effectiveness and the local context. Evidence synthesis collects information on implementation that can inform the local implementation strategy.</td>
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<tr>
<td>Initial research and evaluation</td>
<td>§ <strong>Leadership</strong>: The research and evaluation must address health services’ needs.</td>
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<td>§ <strong>Evaluate the evidence</strong>: Health technologies and models of care require an evaluation that takes account of local context. The evaluation should be appropriate to the technology or model of care, and to the type of decision being made.</td>
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<td>§ <strong>Conduct a trial if necessary</strong>: (1) Is a trial needed? If the technology or model of care has already been evaluated and the evaluation is appropriate to local context, a trial may not be required. (2) Consider study design, sample size, outcome measurement (including use of routinely collected data versus primary data) and economic evaluations/modelling. Consider a trial for implementation.</td>
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<td>§ <strong>Budget Impact Statement</strong>: To document the financial consequence to the local health service from adopting / disinvesting in the technology model of care. These statements can be designed to forecast the budget impact after translation and scale-up.</td>
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<td>§ <strong>Risk assessment</strong>: The identification of risks with the introduction and/or removal of technologies and models of care.</td>
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<td></td>
<td>§ <strong>Evaluation outcome to decision maker</strong>: The information that goes to the decision maker should include: effectiveness, cost-effectiveness, acceptability, equity issues, budget impact (including cost of implementation) and sustainability.</td>
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<tr>
<td>Decision: Adopt, adapt, retain or reject</td>
<td>§ <strong>Consider the evidence and decide</strong>: The evidence generated from the previous steps is considered by decision makers to determine whether the technology or model of care should be adopted, adapted (for example restrictions on authority to access), retained in the system (if already in the health system) or rejected / removed.</td>
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<td>§ <strong>Procurement</strong>: The evaluation might provide information to assist procurement (e.g. price negotiations). A process would help to ensure evaluation insights are considered when purchasing.</td>
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<td>§ <strong>Plan for implementing and scale-up</strong>: An implementation plan should consider local context and scalability of the technology or model of care and include a communication plan. Implementation should be evaluated to ensure that the selected implementation approach is optimal for the circumstance.</td>
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### LIFECYCLE STAGE

**Optimisation**

- **Implementation and scale-up**: Action plans for implementation and scale-up should include post-implementation evaluation.
- **Monitoring and evaluation**: Implementation should form part of a quality improvement cycle to allow feedback and improvement. Optimisation ensures that the technology or model of care is used as intended and not over or under used. For low value care, where a decision has been made to disinvest, monitoring and feedback ensures the decision is adhered to, and technology or models of care that have been discontinued do not reappear in the health system or have an unforeseen adverse impact.

### Discontinue low value health care

- **Low value care**: If a technology or model of care is found to be obsolete / low value stop it from entering the health system.
- For low value care / technologies that are already in the health service, a process is needed to identify and then evaluate so that a decision can be made based on evidence.
- A decision to disinvest requires implementation and an implementation plan that is monitored.

#### 3.2.2 Framework detail

This section provides a detailed design for a framework to evaluate and implement health-related technologies at the local level. The content of this framework was derived from international best practice in the design of health technology assessment frameworks, other insights gained from the literature and the views of senior health service managers and clinicians across Australia. The framework presents an overarching view of how to improve local level evaluation. Within the framework is reference to an evaluation ‘platform’. The platform refers to the operational aspect of an evaluation service, i.e. where and how the evaluation service is hosted.
### Table 5: A framework to evaluate and implement health-related technologies at the local level

<table>
<thead>
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<th>FUNCTION</th>
<th>COMPONENT OF THE HEALTH TECHNOLOGY EVALUATION FRAMEWORK</th>
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| **Structure of the evaluation platform** | Goals and scope of the platform | 1. To provide independent advice and support to clinicians and managers in health services when making decisions on the introduction / maintenance / disinvestment of health technologies.  
2. To assess health technologies and models of care and provide the available evidence, with recommendations, to health services management and clinical bodies.  
3. To engage with community members, patient groups and all other stakeholders on the nature of evaluation and its place in decision making (this includes project specific engagement).  
4. Facilitate better access to existing evaluation and implementation services, to strengthen evaluation capacity building across the health workforce. This includes identifying evaluation and implementation champions within health services who will train / assist others in their section / hospital / health service. |
| | Evaluations that can be Included | 1. Drugs (however, do not replicate PBAC).  
2. Devices (however, do not replicate MSAC).  
3. Procedures (however, do not replicate MSAC).  
5. Public health / health prevention.  
7. Health administration. |
| | Physical location of evaluation units | 1. Evaluation units to be strategically located to optimise access by health services; ideally co-located within or near health services. |
| | Evaluation Co-ordinator / Concierge service | 1. A single point of contact to assist with healthcare evaluation enquiries and the prioritisation of evaluation requests. Provide advice on the design and content of a typical evaluation.  
2. Takes responsibility for escalating evaluation requests based on a prioritisation algorithm.  
3. Directs enquirers to a portal where evaluation data and outcomes are shared amongst health services. |
| | Funding model | 1. Cost recovery for evaluation where possible combined with funding to underwrite part of the evaluation service (i.e. the gap between operational cost and revenue from cost recovery).  
2. Funding must ensure independence of the evaluators.  
3. Supplementary funding to underwrite specific developmental aspects of the evaluation platform sought from grants (CRC, NHMRC, ARC, direct approaches to government). Evaluation techniques are constantly developing and there is a need to develop applied methodologies (for example in integrated care). Applied evaluators should be encouraged to be part of this innovation process and may require funding.  
4. Examine partnerships with private health insurers and healthcare providers to generate private sector funding support (with appropriate guidelines and safeguards). The private sector benefits from healthcare evaluation which creates opportunities for funding support. |
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| Structure of the evaluation platform continued | Prioritisation of projects for evaluation | 1. An algorithm to be generated for local prioritisation of projects for evaluation based on:  
a. The needs of the local area;  
b. The characteristics of the technology (likelihood of use in local health services);  
c. Available evaluation resources;  
d. Guidelines from state, territory and commonwealth governments. |
| Information sharing | | 1. National approach to information sharing. A web portal to allow data used in evaluations (e.g. literature review outcomes, summary of de-identified patient data) to be stored. Portal will also store information on implementation and outcomes from ongoing monitoring.  
2. All information must be curated so that it is searchable – requires a mechanism to share evaluation information horizontally between local health services and vertically between levels of government.  
3. Traditional methods of information sharing: peer-reviewed journals, conferences, media (to share evaluation outcomes with the community).  
4. Direct engagement with stakeholders, including: relevant government departments, policy leaders, politicians and the community. |
| Core skills required | | 1. Epidemiology.  
5. Health economics.  
6. Clinical trials management.  
7. Implementation science.  
8. IT / web-based design support.  
9. Education and training.  
10. Quality assurance. |
| Evaluation methods | Identify the problem /need | 1. Clarify the problem(s) experienced by health services.  
2. Identify the population needs (Needs assessment – see next step).  
3. Prioritise problems / needs.  
4. Identified potential ‘Solutions’ (such as imported technology or local designed innovation) should address the prioritised problem / need. |
| | Evidence synthesis | 1. Formal needs assessment may be required.  
2. Horizon scanning: Utilise frontline health staff in health services to identify potential health technologies relevant to clinical specialities (share this information with relevant groups e.g. HealthPact).  
3. Prioritisation process for determining which technologies may be relevant to the local area’s problems and needs.  
4. Search the existing evidence (e.g. repositories held by government, academia, and information contained in the Cochrane Collaboration) to identify existing technology and any evidence on its appropriateness to the local context. |
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| Evaluation Methods continued | Initial research and evaluation | 1. Technology may be imported (i.e. adopted or adapted from elsewhere) or developed locally (i.e. local innovation).
2. Determine whether the technology should be evaluated in the local context (i.e. is the available evidence applicable to the local context?).
3. Stakeholder identification and engagement:
   a. Who will be impacted by this evaluation / technology / model of care? E.g. patients, community, health departments (including those outside the department where the technology will be introduced), funders, custodians (enable the evaluation), community, patients.
   b. Have stakeholders been consulted about the evaluation?
   c. Has the evaluation been co-designed with relevant stakeholders?
4. If necessary, design a trial, engage stakeholders, obtain ethics approval and then conduct an evaluation trial.
5. Evaluation design:
   a. Comparator – typically the comparator is usual care (but might be another competing technology or model of care).
   b. Flexibility in the study design. Study design to be appropriate to the question. Health services do not always need to undertake an RCT. The design might also be based on evidence synthesis (e.g. an existing or implemented systematic review of the evidence) or routine data collections.
   c. Is a mini evaluation an option to enable a rapid, relatively low-cost evaluation of existing evidence?
   d. Use outcome measures that are relevant to the particular technology and the decision to be made, but which also include measures of impact such as PREMs and PROMs.
6. Skills: study design, biostatistics, informatics, health economics (budget impact statement for health services) simulation modelling.
7. Evaluation outcomes appropriately communicated to decision maker.
8. For cost-effective technologies where there will be an impact on the local health service’s budget, determine whether a Budget Impact Statement is necessary. These statements convert the evaluation outcomes, including the health economics, into a format easily understood by finance managers in health services. |
| Evaluation outcome & decision | 1. Decision maker provided with evaluation evidence (including Budget Impact Statement).
2. Decision to be made. Adopt or adapt the technology or model of care / retain (if already in the system) / reject (if not in the system already) or disinvest (for technologies already embedded in healthcare).
3. Procurement – does the evaluation have insights for procurement? (e.g. price negotiation).
4. Plans for implementation of decision and scale-up (requires evaluation of these steps, including a communication plan). |
| Optimisation | 1. Once the decision is made, monitor to ensure the decision is i) actioned and ii) maintained and that use of the technology or model of care is appropriate.
2. May require ongoing monitoring to ensure proper implementation and/or scale-up (implementation plan need review in light of monitoring and feedback).
3. Cycles of feedback – use these cycles to refine the use of the technology and its implementation and scale-up. |
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| **Evaluation Methods continued** | Disinvestment                                           | 1. Once a technology is identified as i) obsolete ii) ineffective iii) harmful, it is now “low value healthcare” and should be removed. Removal of low value care should be accompanied by a Budget Impact Statement as removal of this care creates financial headroom to purchase newer, cost-effective, technologies.  
2. Decisions to be made: Whether to disinvest? How to implement the decision?  
3. A decision to disinvestment requires an implementation plan.  
4. Monitoring (and feedback) of the implementation plan and disinvestment will identify if the forecast benefit was realised. |
| Perspective of evaluation      |                                                         | 1. Societal perspective preferred.  
2. Where required, a funder perspective.  
3. Modelling to allow results to be produced from a range of perspectives, e.g. narrow perspective (funder) through to societal.  
4. Budget Impact Statement to be undertaken with perspective of health services but stratified to reveal costs and benefits falling to other groups, individuals, organisations. This helps decision makers understand the immediate health service impact from a decision as well as the broader patient outcomes and downstream societal impacts. |
| Uncertainty, sensitivity & risk |                                                         | 1. In the evaluation - sensitivity analysis is likely to be required: Aim: to assess which variables have the largest impact on the outcome  
2. In the evaluation - uncertainty analysis is likely to be required: Aim: to quantify the uncertainty around the outcome, e.g. an uncertainty interval around the ICER.  
3. Risk analysis:  
   a. What risks are associated with the introduction of the technology?  
   b. What risks are associated with rejecting / removing the technology? |
| Generalisability and transferability |                                                         | 1. Relates to implementation and, specifically, the ability to scale-up or promulgate the technology or model of care elsewhere.  
2. Evaluations to consider generalisability of the results (e.g. do factors such as patient groups or sample location influence the ability to generalise the outcome to a broader area OR limit the ability to infer the outcomes, obtained nationally or internationally to the local area?).  
3. Evaluation analyses should consider broader impacts if the technology is adopted in other regions or nationally. |
| Data for the evaluation         |                                                         | 1. Local level evaluations need to search for available evidence; where possible they will source information from routinely collected data. This may require early engagement with data custodians who should be regarded as stakeholders in the evaluation.  
2. The evaluation will be, where possible, designed for prospective implementation which allows for the early identification of required data – hence any original data can be identified at the outset and collected prospectively. |
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| **Evaluation Methods continued** | Ongoing monitoring and evaluation | 1. Appropriately planned, registries can inform monitoring and follow-up.  
2. Develop common data (minimum dataset) for patient registries that include patient outcomes (e.g. PREMs and PROMs) and economic variables. |
| **Evaluation processes** | Process to contribute to decision making | 1. Advisory – evaluations to include recommendation to adopt / adapt / maintain / maintain with modifications / disinvest. To optimise the usefulness of this recommendation, evaluations should include a Budget Impact Statement. These statements offer decision makers a higher level of insight as to the impact of various decisions on the health service budget. |
| | Process for procurement | 1. Advisory – the evaluation may provide insights to assist purchase / pricing negotiations. |
| | Process for implementation | 1. Active participation in implementation. Work with an implementation specialist to assist i) health services understand the evidence generated by the evaluation ii) the design of implementation strategies (co-design with health services) and iii) monitor both use of the technology (and outcomes) and its implementation.  
2. Implementation process should be evaluated – to ensure that the implementation strategy works and is appropriately tailored (and refined as needed) to the circumstances. |
| | Process for identifying disinvestment opportunities | 1. Develop protocols, with health service clinicians and managers, for identifying low value healthcare. These protocols might include Choosing Wisely\(^2\) techniques, statistical review of relevant data & databases (adverse events, patient outcomes, readmissions, law suits, complaints etc.), surveys of clinicians etc.  
2. Develop an algorithm for prioritising suspected low value care for evaluation.  
3. Conduct evaluation of suspected low value care to determine whether evidence supports a decision of disinvestment.  
4. Work with implementation specialist and collaborate with change managers. Implement monitoring to ensure discontinued technology is not re-introduced and there are no adverse impacts from removal of service. |
| **Engagement and collaborations** | | 1. Active engagement with evaluation stakeholders in health services. Identify potential end users of the technology and ensure they are engaged with the evaluation. Be aware that end users may sit in other specialties / departments and that their support for implementation may be necessary for success. Engagement should include data custodians.  
2. Active engagement across health services (vertical and horizontal)  
This may be through, for example, a portal to store data; evaluation outcomes; health service decisions. This is an opportunity to share information to:  
a. Reduce the likelihood of unnecessary duplication of effort.  
b. Allow health services to introduce evaluated technologies.  
c. Allows information exchange with state, territory and commonwealth governments.  
3. Active engagement with patient and broader community groups.  
4. Active engagement with national and international HTA organisations. |
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| **Evaluation processes continued** | Capacity building | 1. Delivery of training program to ensure a workforce with capability and capacity to be part of the evaluation platform. These might include coursework degrees in healthcare evaluation, implementation science, research degrees and short professional development courses.  
2. Develop on-line learning modules that support capacity and capability building in regional, rural and remote locations. |
| **Evaluation and its relationship to decision making** | Contribution of evaluation to decision making in health services | 1. Evaluation outcomes will contribute to decision making on whether a technology or model of care should be:  
a. Adopted.  
b. Adapted.  
c. Continued / continued with modification.  
d. Rejected (i.e. prevented from entering the system).  
e. Removed (i.e. has already entered the system and must be removed).  
2. The evaluation can potentially contribute to decisions on procurement (e.g. evaluation insights might be obtained to help purchase / price negotiations).  
3. Implementation (e.g. in performing an evaluation, insights might be gained on how to optimise implementation). The evaluation should include an implementation strategy. |
| **Timely decisions** | | 1. Ensure existing evidence is accessed and assessed before more detailed evaluation is progressed.  
2. Use Mini-HTAs where appropriate. |
| **Communication & transparency** | | 1. Communication of evaluation outcomes to all stakeholders using a communication plan that is appropriate for each stakeholder. (See portal for sharing information horizontally and vertically).  
2. Explain and be transparent about the relationship between the evaluation outcome and the decision to invest in, continue, modify, reject or reverse the use of a technology or model or care.  
3. A mechanism to ensure communication on evaluation-related issues is shared across the membership of AHRTCs / CIRHs and government agencies. |
| **System support of evaluation** | | 1. Explicit top-down support for evaluation and implementation processes from senior managerial and clinical staff.  
2. Capacity building across health workforces to increase understanding of evaluation and its contribution to decision making and implementation. i.e. to facilitate bottom-up support for evaluation. |
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| **Other factors affecting the functionality of evaluation at the local level** | Assessment of the evaluation framework: KPIs | 1. A three-yearly impact assessment (internally conducted) on the cost versus effectiveness of the evaluation platform. The assessment should make recommendations for refinement. Metrics to assist a cost-consequence analysis could include: 
   a) Cost of the evaluation service; 
   b) Number of evaluation reports/advice; 
   c) Number of recommendations accepted; 
   d) Number of capacity building engagements (record student attendance and enrolments in courses, research degrees, professional development courses, other capacity building initiatives such as direct tuition, workshops, etc); 
   e) Number of occasions health services use the evaluation platform; 
   f) Annual audit of post-evaluation decision implementation; 
   g) Stakeholder satisfaction; 
   h) On a case study basis (due to cost) a comparison of projected additional costs or savings from introducing or disinvesting in a technology compared to actual savings (i.e. comparing forecast costs and savings against realised costs and savings). This information can be used to fine tune projections of budget impact; 
   i) Engagements with state, national and international HTA bodies; 
   j) External funding attracted to further evaluation ($ value) from NHMRC, ARC, MRFF, CRC, government, and revenue raised through cost recovery. 
2. Reviews submitted through governance structure (i.e. reviews of specific evaluations and implementation pathways). 
3. External review of the performance of the evaluation platform every 6 years (conducted by an external health service evaluator). |
| **Create a profile of the impact from evaluation and implementation** | 1. Host conferences and seminars in local level evaluation and implementation. 
2. Presentations at relevant conferences. 
3. Peer-reviewed articles. 
5. Presentations and engagements with communities and patients. 
7. Publish impact assessments of the evaluation platform in relevant journals. |
4. TEN PROBLEMS AND SUGGESTED ACTIONS

To improve the use of evaluation and evidence in healthcare decision making and to address the call of the Productivity Commission to improve Australian evaluation of healthcare, a number of key problems and suggested actions have been developed from the works conducted in this report.
1. **Problem:** There is no national guideline or framework in Australia to describe what ‘local level evaluation’ might look like. A high-level framework is needed to guide strategic development to improve local level evaluation of health technologies and models of care.

   **Action:** An Expert Panel to endorse a framework for local level evaluation and implementation. The Panel should consider the framework designed by WG3 and make a recommendation to either adopt, adapt or reject it.

2. **Problem:** There is uncertainty amongst some health services about access to existing capabilities in evaluation. Accelerated access to evaluation resources is needed in some health services. At the same time, there is a need to share the experience of AHRTCs and CIRHs that are advanced in the provision of evaluation services to health.

   **Action:** Conduct an AHRA centre-wide audit of evaluation skills, capacity and capability. Include resources currently located in health services as well as in affiliated universities and MRIs. Include other external established expert resources used by health evaluations.

   **Action:** Collate information from the AHRTCs and CIRHs on their evaluation and implementation capabilities. Share this information with all AHRTCs and CIRHs and government health departments.

   **Action:** Develop national guidelines for local level evaluations to assist workforce capacity building. Include criteria for the design, evaluation and implementation of clinical trials.

3. **Problem:** There is inconsistency in how new technology or models of care are introduced into health services, and how front-line staff report suspected low value care.

   **Action:** If one does not already exist, appoint an evaluation coordinator within local health services to be responsible for general evaluation advice to guide new technology applications or processes, and gather and prioritise intelligence on low value care.

4. **Problem:** Low value care remains an issue in health services and there has been limited success in dealing with it. Techniques are needed to identify potential low value care and then evaluate it, so that local disinvestment decisions are based on evidence.

   **Action:** Better understanding of existing techniques (and their effectiveness) to identify and action local value care (e.g. Choosing Wisely). This information to be shared with all AHRTCs, CIRHs and government health agencies.

   **Action:** Building on point 4.1, develop a national plan to guide identification of low value care, its prioritisation for evaluation and, if proven to be low value, recommended evidence-based implementation pathways for removal.

   **Action:** Post implementation – ensure monitoring and evaluation of the strategies employed to remove low value care. Ensure the evaluated outcomes of the strategies are shared between health services.

5. **Problem:** Low levels of stakeholder engagement in evaluations. These include: patients, community, health service staff, policy makers, industry, government, philanthropic funders.

   **Action:** Identify stakeholders and engage them at the start of a clinical evaluation to ensure relevant data is incorporated in the study design. Encourage local level health services to endorse community engagement in evaluations and develop processes to support and encourage it. Existing programs of Consumer and Community Involvement in health and medical research, such as through Monash Partners, are examples of what can be achieved.

6. **Problem:** The public, politicians and other community leaders know relatively little about the place of evaluation in healthcare decision making.

   **Action:** Encourage public dissemination of evaluation outcomes. Promulgate evaluation outcomes through traditional media outlets, meetings with politicians, submissions to Parliament. Develop awareness-raising communications on health evaluation outcomes.
7. **Problem:** A lack of capacity building in evaluation and implementation skills. There is currently a shortage of skilled evaluators who are willing to work on health service issues.

7.1 **Action:** A national, state and territory supported statement on the need for evaluation and evidence in decision making.

7.2 **Action:** National consensus on curriculum content for training in evaluation and implementation skills.

7.3 **Action:** Support capacity building through:
- A tool kit to promote evaluation across front line health services staff and senior management.
- Provision of training and education to help embed these skills in health services.

7.4 **Action:** The provision of evaluation and implementation services through centres supported by AHRTCs and CIRH affiliated universities and MRIs.

7.5 **Action:** Co-location of core evaluation skill sets within health services. AHRTCs and CIRHs could play a major role in facilitating co-location and ensuring health-led evaluations that address local health needs.

8. **Problem:** Funding for evaluation and implementation is haphazard. A dedicated funding stream to support capacity and capability in evaluation and implementation skills is required.

8.1 **Action:** Stabilise funding to support and sustain improved capacity in evaluation and implementation skills. A review of funding models is required to assist incorporation of evaluation at the local level. The review should include existing (e.g. NHMRC) and developing funding streams (e.g. MRFF) and shared federal and state/territory government funding.

9. **Problem:** Limited sharing of evaluation data and outcomes between health services means local health services can be simultaneously evaluating the same technology or model of care. Duplication is a waste of resources.

9.1 **Action:** National consensus on how to facilitate sharing of evaluation and implementation data and outcomes. The consensus must consider existing state-based mechanisms and prioritise ‘curation’ of this data so that it can be efficiently searched.

9.2 **Action:** National consensus on thresholds for information sharing and include these thresholds in any accreditation guidelines for centres of excellence in evaluation and implementation.

10. **Problem:** Health services staff do not always know how to translate the information in evaluation reports, particularly economic assessments, into practical information they can use in decision making. Specifically, whether a cost-effective technology or model of care will be affordable, given the available health budget.

10.1 **Action:** Develop an Australian standard for Budget Impact Statements. Encourage their routine inclusion in any economic evaluation of health technology or model of care.
5. MAJOR RECOMMENDATIONS
Establish a national Expert Panel of people with the skills to develop the national and local level evaluation and implementation framework (consider the framework developed by WG3 presented in Chapter 3) as a National Advisory Committee on Evaluation and Implementation. It is recommended that the Committee:

1. Oversee a national approach to local level evaluation and implementation;
2. Recommend a curriculum to support tertiary training and professional development in evaluation and implementation;
3. Set thresholds for AHRTC and CIRH centres to be accredited as Centres of Excellence in Evaluation and Implementation.

This recommendation addresses problems: 1, 2, 3, 4, 6, 7, 9, 10

Boost education and training, and professional development for clinicians and managers, to ensure a sustainable health services workforce that is ‘evaluation and implementation capable’.

This recommendation addresses problems: 3, 4, 5, 6, 7, 10

Increase the workforce of skilled evaluation staff at the local level with the capability to:

1. Be integrated into health services;
2. Undertake evaluation and monitoring;
3. Advise on the implementation of evidence-based decisions;
4. Provide decision makers in health services with appropriately communicated information;
5. Communicate about evaluation and implementation outcomes to a wide range of specialist and non-specialist audiences.

The conduct of evaluation and implementation by these resources must be informed by engagement with health professionals, the community, consumers and other stakeholders.

This recommendation addresses problems: 2, 3, 4, 5, 6, 7, 10

Facilitate an increase in evaluation and implementation resources (financial) at the local level that supports a sustainable integration of evaluation and implementation capability into health services’ decision making.

This recommendation addresses problems: 3, 4, 7, 8
6. REFERENCES


7. APPENDIX I:

QUESTIONS THAT GUIDED THE CONSULTATIONS AND INFORMATION SHEET PROVIDED TO PARTICIPANTS
**CONSULTATION QUESTIONS:**

<table>
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<tr>
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<th>Question</th>
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<tbody>
<tr>
<td>1</td>
<td>Do evaluations of healthcare influence decisions in your organisation? If no, what prevents influence? If yes, how does your organisation use evaluation outcomes in decision making?</td>
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<tr>
<td>2</td>
<td>What level of evidence does your organisation require for decision making? Are existing evaluation processes satisfactory for your organisation?</td>
</tr>
<tr>
<td>3</td>
<td>How is healthcare evaluation done in your organisation? What resources do you have available for this evaluation work?</td>
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<tr>
<td>4</td>
<td>In the context of improving the health of your organisation’s patients, what evaluation would your organisation like to do but cannot do now?</td>
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<tr>
<td>5</td>
<td>What are the barriers to better evaluation in your organisation?</td>
</tr>
<tr>
<td>6</td>
<td>Would your organisation be interested in developing internal evaluation capability? How do you/your unit/facility/organisation currently make decisions about the introduction of new technologies?</td>
</tr>
<tr>
<td>7</td>
<td>Is this high-level depiction of healthcare evaluation relevant to your organisation? (see next page for the information sheet provided to participants) (Facilitators emphasised that it was an ‘ideal’ depiction, not necessarily a real world representation. The facilitators presented stakeholders with a printed copy of the model.)</td>
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### AUSTRALIAN HEALTH RESEARCH ALLIANCE (AHRA)

**Health Systems Improvement & Sustainability (HSIS)**

Consultations with Health Service Executives

<table>
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<tr>
<th>AHRA HSIS project and this consultation</th>
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<tr>
<td>The AHRA consists of the seven nationally accredited Australian Advanced Health Research Translation Centres (AHRTCs) and two Centres of Innovation in Regional Health (CIRHs). Your health service/organisation is part of this collaboration. This consultation is part of the AHRA national HSIS project that aims to understand the needs of health service executives and managers when evaluating the implementation of new models of healthcare at the local level. The consultation will focus on the decision making process by health service executives and managers and what is needed to assist in this process. The consultation will inform the HSIS national framework being developed by AHRA.</td>
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<tr>
<th>The aims of this AHRA HSIS project</th>
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<td>1) Identify appropriate assessment models for the evaluation of changes to models of healthcare at a local level;</td>
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<td>2) Identify gaps in the current environment for the evaluation of healthcare;</td>
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<tr>
<td>3) Identify strategies that could be applied in the Australian setting to critically evaluate both health systems and health technology.</td>
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<tr>
<th>Who will you be speaking with?</th>
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<tr>
<td>Andrew Searles leads the health economics unit at Hunter Medical Research Institute (HMRI). He is a Professor in health economics at the University of Newcastle and has been extensively involved in the redesign of the evaluation processes of healthcare in regional NSW. Penny Reeves has a substantial industry, government and academic background in health economics. She has also been extensively involved in the redesign of the evaluation processes of health care in regional NSW.</td>
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<th>Definition of Key terms</th>
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<tr>
<td>In the context of improving the health of your organisation's patients, what evaluation would your organisation like to do but cannot do now?</td>
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<th>Examples of consultation questions</th>
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<td><strong>General questions for the consultations:</strong></td>
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<td>i. Do evaluations of healthcare influence decisions in your organisation? If no, what prevents influence? If yes, how does your organisation use evaluation outcomes in decision making?</td>
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<td>ii. What level of evidence does your organisation require for decision making? Are existing evaluation processes satisfactory for your organisation?</td>
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<td>iii. How is healthcare evaluation done in your organisation? What resources do you have available for this evaluation work?</td>
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<tr>
<td>iv. In the context of improving the health of your organisation's patients, what evaluation would your organisation like to do but cannot do now?</td>
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<tr>
<td>v. What are the barriers to better evaluation in your organisation?</td>
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<tr>
<td>vi. Would your organisation be interested in developing internal evaluation capability?</td>
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The following diagram was included on the information sheet for participants. This is the version originally presented to participants. See page 42 for the amended diagram after it was adjusted with feedback from consultations with participants.
9. APPENDIX II:

KEY THEMES RAISED IN RESPONSE TO QUESTIONS 1 - 7 IN THE CONSULTATIONS WITH HEALTH SERVICES
Q1. Do evaluations of healthcare influence decisions in your organisation? Proportion responding ‘yes’

If yes: how does your organisation use evaluations in decision making

Q2. What level of evidence does your organisation require for decision making? Are existing evaluation processes satisfactory?

Proportions reflect health services that mentioned each issue in the semi-structured interviews.
Note: Multiple responses permitted; hence proportions do not add to 100%
Q3. *How is healthcare evaluation done in your organisation? What resources do you have for this evaluation work?*

- Can do some evaluation - have strong evidence synthesis skills: 4%
- Some evaluation done in-house and funded by health service - funding in NWAU used to finance some evaluation expertise: 7%
- Some evaluation done in house but need understanding of what evaluation skill sets are in the health workforce: 15%
- Some evaluation done through contractors - with unsatisfactory results: 22%
- Some evaluation is done / driven by external stakeholders (e.g. state government) rather than local needs: 30%
- Evaluation undertaken through contractors (consultants or academic partner): 63%
- Some evaluation done by health service in-house: 93%
- Not enough evaluation done in health services - need more resources & capacity in evaluation: 93%

Q4. *In the context of improving the health of your organisation’s patients, what evaluation would your organisation like to do but cannot now?*

- Better evaluation / documentation of risk: 4%
- Better monitoring and evaluation of outcomes from decisions: 4%
- Benchmarking across local health areas: 4%
- Better data to allow evaluation of the pathway between primary and acute care: 11%
- Evaluation of administrative procedures (e.g. procurement): 15%
- Evaluations of RCTs: 19%
- Evaluations of low value care: identify & evaluate: 33%
- Evaluations that routinely use PREMs and PROMs: 33%
- Better registry data: 37%
- Evaluations that include health economics: 52%
- Better outcome data to support evaluations: 56%
- Evaluation of implementation processes: 67%
- Better monitoring and evaluation of outcomes from decisions: 67%
- Evaluation that is better tied to health service needs: 74%
Q5. **What barriers to better evaluation exist in your organisation?**

The best metrics are not used (i.e. more PROMs & PREMs) / broader metrics needed that reflect social and economic impact

- 19% (Primary data)

- 26% (Access to routinely collected data)

- 33% (Ability to run audits for quality improvement)

- 41% (Money / financial resources is a barrier to evaluation)

- 52% (Culture of the workforce not supportive of evaluation / evaluation in decision making)

- 63% (Appreciating the need for evaluation so that it is included at the planning stage)

- 81% (Evaluation staff and skills)

Q6. **Would your organisation be interested in developing internal evaluation capability?**

- Yes - but need a stocktake of what skills we have 4%

- No 4%

- Yes - but already have good research and evaluation capacity 15%

- Yes in specific areas - public health evaluation 22%

- Yes - low value care: identification and evaluation so that strategies for removal can be implemented 30%

- Yes in specific areas - implementation 48%

- Yes in specific areas - health economics 56%

- Yes in specific areas - evaluation in general 74%
Q7. Is this high level depiction of the healthcare evaluation lifecycle relevant to your organisation?

No - does not reflect variables such as personally preference / beliefs; and other irrational aspects of human decision making 4%

Yes - does not well represent implementation strategies to reduce low value care 17%

Yes but does not capture real world complexity 21%

Yes - and we already do most of what is in the framework 29%

Yes but add or emphasise additional components 75%

Yes 83%

n=24 health services

Note: Diagram of the lifecycle presented during the consultation

The healthcare evaluation lifecycle

Initial research and evaluation
- Understand local health needs
- Find suitable healthcare models (i.e. import or design)
- Initial evaluation (what is currently known?)

Evidence gathering
- Evaluate the evidence
- Conduct trial if necessary (i.e. existing evidence not relevant)
- Health economic assessment
- Evaluation outcome to decision maker

Consider all evidence
- Decision: Adopt, retain, remove healthcare
- Procurement
- Implementation and scale-up

Optimisation
- Monitor implementation of the decision - technology being used (or stopped) as planned?
- Cycles of: feedback / refine / action
- Mechanisms for scale-up across services or state / territory

Adoption
- Healthcare model is now obsolete or found to be 'low value'
- Must implement disinvestment strategy - i.e. stop or alter healthcare model

Discontinue low value healthcare