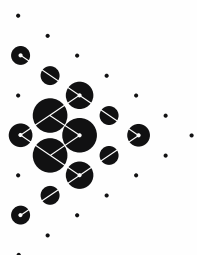# Transforming Australia's capacity to use research evidence to drive better health outcomes

Phase Two of the world-leading Living Evidence initiative
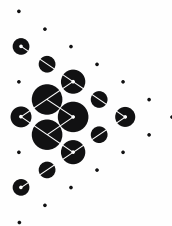
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NATIONAL
COVID-19
CLINICAL
EVIDENCE
TASKFORCE

Cochrane Australia

Arthritis AUSTRALIA

ADEA
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Australian Diabetes Society

Australasian Paediatric Endocrine Group

diabetes australia

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AUSTRALIA & NEW ZEALAND MUSCULOSKELETAL
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NHMRC CENTRE OF RESEARCH EXCELLENCE

Heart Foundation

CARI GUIDELINES
CARING FOR AUSTRALIANS & NEW ZEALANDERS
WITH KIDNEY IMPAIRMENT

Kidney Health Australia

Stroke FOUNDATION

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Contact

Associate Professor Julian Elliott
Chair
+61 405 704 795
julian.elliott@monash.edu

Rhiannon Tate
National Development Lead
+61 407 941 260
rhiannon.tate@monash.edu

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Executive Summary

Proposal
Deliver Phase Two of the world-leading Living Evidence initiative

Investment commitment
$8 million from the Australian Government ($2.8 million in 2021-22, plus $5.2 million over the forward estimates)

Need for action
- Evidence-based clinical guidelines are central to the delivery of high value health care
- Outdated, inefficient systems can't keep guidelines up-to-date with the latest research
- Translation of research findings into clinical practice and policy is too slow (average 5+ years)
- Poor quality and format of guidelines is impeding the adoption of best-practice
- Lack of a coordinated national framework is eroding trust in guideline recommendations
- Unnecessary waste results from duplication at local, state, national and international levels

Opportunity
Australia is at the global forefront of development for Living Evidence—an innovative model harnessing software, data systems, machine learning, citizen science and co-production to enable continuous evidence surveillance and near real-time updating of high-quality clinical guidelines.

The Australian Living Evidence Consortium (the Consortium) has successfully delivered Phase One of the Living Evidence initiative, which included world-first pilot projects to establish Living Guidelines in stroke, diabetes and arthritis.

Phase One investment by the Australian Government meant the Consortium was able to respond rapidly to deliver the world's only evidence-based Living Guidelines for COVID-19 that are updated weekly with emerging research whilst maintaining gold standard methods and scientific rigor. The guidelines have been viewed more than 285,000 times and received widespread acclaim internationally for setting a new benchmark in evidence-based health care.

Phase Two objectives
- **Create** a National Centre for Living Evidence to provide coordination, training and research
- **Integrate** and enhance technical systems and digital solutions to reduce unit costs and time
- **Develop** and maintain Living Guidelines in five chronic diseases to national quality standards
- **Optimise** the dissemination and use of evidence-based guidance for policy and practice change
- **Leverage** investment in COVID-19 Living Guidelines to benefit far more Australians, including those disproportionally affected by chronic disease – First Nations People and rural/remote communities

Key outcomes to be delivered
- **Rapidly bringing research discoveries to point-of-care and decision-making**, targeting an 80% reduction in time from publication of research to incorporation in evidence-based guidelines
- **Drive health system value through accelerated co-production of guidance based on the latest research:**
    a) Targeting a 50% reduction in the time to complete key tasks for evidence synthesis
    b) 25% reduction in time to update guidelines to NHMRC standards
    c) 300% increase in the number of patients and clinicians involved in living guideline development
- **Give patients more opportunities to be active participants in their health care:**
    a) Targeting a 300% increase in guideline users
    b) 30,000 monthly users of decision aids and tools

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Every Australian should receive health care based on the best available evidence

Context

Over the last half century, Australia has become renowned for its world leading health and medical research, consistently backed by strong public investment. Australians recognise the importance findings from health and medical research play in improving clinical care and health outcomes.

The record level of investment in health and medical research currently made by the Australian Government is widely supported by Australian tax payers, with the rightful expectation this substantial public spend delivers a return on investment to the Australian community[1].

Despite this, comparatively little investment has been made in advancing the underlying systems that are needed to efficiently and effectively translate an increasing volume of research into timely, reliable and actionable guidance available to patients and health care professionals at the point-of-care and decision-making[2].

The reason for action

The delivery of high-quality, high-value health care is dependent on evidence-based guidance to define best practice, including systematic reviews, clinical practice guidelines, standards, protocols, policy briefs and health technology assessments.

Across Australia, our systems for developing and using evidence-based guidance are no longer fit-for-purpose:

- **The current pace of translation of research findings into clinical practice and policy is too slow**: Technical systems for the development of evidence-based guidance cannot effectively process the exponentially increasing research output (over 4,000 articles per day[3]) to 'make sense' of research findings in a timely manner. This is delaying the translation of life-saving evidence into practice and policy, often by several years[4].

- **Poor quality and format of guidelines impedes the adoption of best-practice:** Clinical practice guidelines are of varying quality, reliability and currency, are disseminated as individual documents and are produced in different formats[5]. Health care professionals often need to navigate over 50 separate guideline documents.

- **Lack of an integrated framework erodes trust in guideline recommendations:** Australia lacks a national, integrated, priority-driven, strategic framework for developing evidence-based guidance. There is no agreed mechanism for coordination or standardisation, which results in the quality and presentation of guidelines varying widely between disease groups. A lack of trust in guideline recommendations contributes to unnecessary variation in practice across Australia[2].

Critical weaknesses in Australia's clinical guideline sector

- Inefficiency
- Poor quality
- Lack of capacity
- Lack of investment in IT
- Inaccessibility
- Obsolescence

NHMRC 2015

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The next-generation approach accelerating research to point-of-care
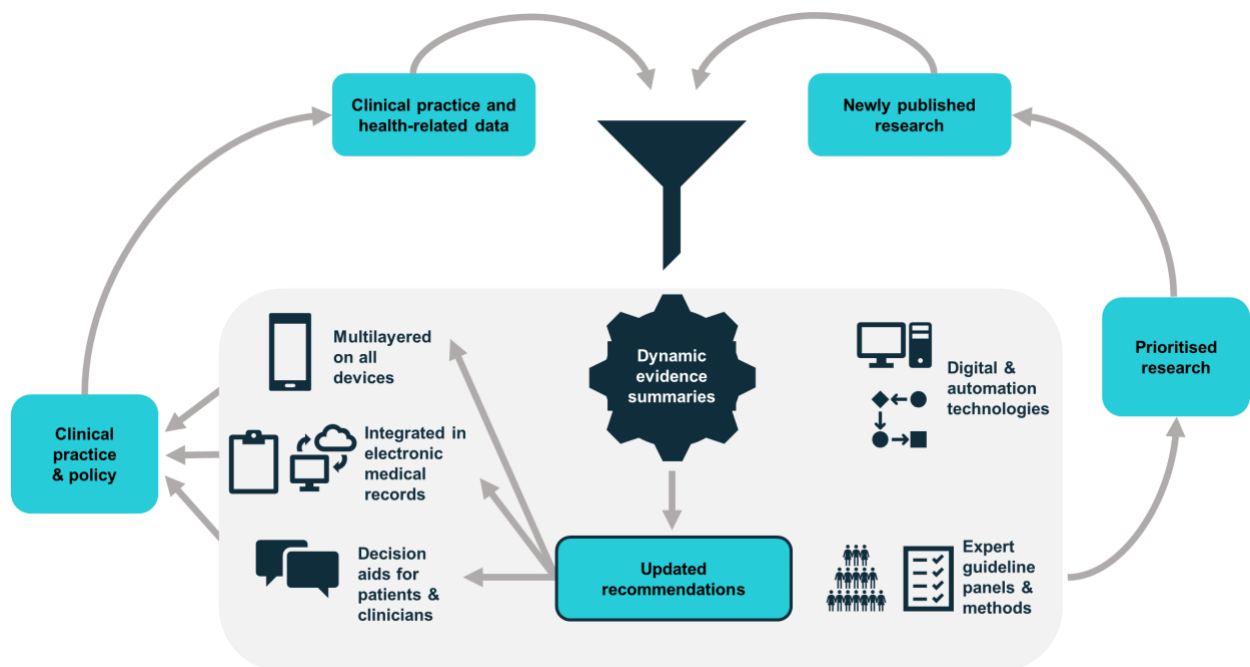
The need to act now

Australia must address these system failures in order to connect an accelerating research sector with data-driven health services. The urgency for government to act now is driven by:

- **Rising pressure to maximise returns on research investment:** As public investment in health and medical research increases with the full capitalisation of the Medical Research Future Fund (MRFF), it is imperative that in parallel, Australia develops fit-for-purpose mechanisms to address a critical bottleneck in the translation of research into practice and policy.

- **Surging levels of research and health related data:** Technology and health-related data are increasingly leveraged across the health sector but are neglected in the field of evidence-based guidance. This will be a major impediment to improving health system value if not addressed.

- **The push to participatory health:** Patients are becoming more engaged in their own health care, but must navigate an increasingly complex, unregulated online space for health advice. They lack a single source of truth that is informed by reliable, up-to-date evidence.

The Living Evidence model

Living Evidence is a world-leading approach to the synthesis and dissemination of evidence-based guidance.

The model harnesses innovations in software, data systems, machine learning, citizen science and co-production to enable continuous evidence surveillance and near real-time updating of high-quality systematic reviews, clinical practice guidelines and other evidence-based resources used to inform health care practice and policy.

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Five chronic diseases , >11 million Australians, >$30 billion per year

About the Australian Living Evidence Consortium

The Australian Living Evidence Consortium (the Consortium) is a group of leading clinical, consumer and research groups in stroke, diabetes, heart disease, kidney disease and musculoskeletal conditions. The Consortium is led by Cochrane Australia (based in the School of Public Health and Preventive Medicine at Monash University) and the core partners are:

Arthritis Australia	Diabetes Australia
Australian Diabetes Educators Association	Australian and New Zealand Society of Nephrology
Australian Diabetes Society	Australia & New Zealand Musculoskeletal Clinical Trials Network
Australasian Paediatric Endocrine Group	Heart Foundation
CARI Guidelines	Kidney Health Australia
Cochrane Australia	Stroke Foundation

The Living Evidence initiative has grown out of a shared understanding among Consortium partners that a new approach to evidence synthesis, guideline development and research translation is needed. The Consortium has come together to collaboratively develop, implement and evaluate a comprehensive program of research and development (R&D) built around a series of Living Guideline exemplar projects.

As a partnership of 12 peak national organisations, the Consortium collectively engages more than 70 relevant clinical, patient, research, and policy groups working to improve health care delivery and patient outcomes across Australia.

Phase One of the Living Evidence program has received broad support from across the sector, both nationally and internationally, and is considered to be a vanguard initiative among some of the world's leading agencies for evidence-based health care and related technologies, including from the UK's National Institute for Health and Care Excellence (NICE) and the Canadian Agency for Drugs and Technologies in Health (CADTH).

"In a time of abundant evidence generation and rapid health technology innovation, the concept of living evidence and guidelines has extreme relevance and potential to support evidence-informed health care and policy."

Chief Scientist and VP Evidence Standards
Canadian Agency for Drugs and Technologies in Health (CADTH)

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National coordination and leadership

Building on Phase One

Phase One of the initiative focused on developing the foundational methods, software, machine learning tools and workflows for Living Evidence and was initiated with joint funding from the National Health and Medical Research Council (NHMRC) and Cochrane, with subsequent support from a number of partners including the Australian Department of Health, Victorian Department of Health and Human Services and the Medical Research Future Fund.

The program has successfully delivered early benefits including the development and launch of the world's first evidence-based Living Guideline—the Australian Clinical Guidelines for Stroke Management[6].

This paved the way for two further demonstration projects; Australian Evidence-Based Clinical Guidelines for Diabetes and an Australian Living Guideline for the Pharmacological Management of Inflammatory Arthritis, followed by a major international leadership role (ongoing) in the provision of up-to-the-minute clinical guidance for COVID-19.

Role in Australia's COVID-19 response

The first version of the Australian Guidelines for the Clinical Care of People with COVID-19 was published on 4 April 2020, less than two weeks after the Consortium was called upon to support the establishment of a National COVID-19 Clinical Evidence Taskforce to develop Living Guidelines for COVID-19.

The Taskforce infrastructure includes 32 peak clinical member organisations, over 230 clinical and evidence experts across 10 panels that are supported by a sophisticated system of daily evidence surveillance and weekly updates to evidence-based guideline recommendations published on a dedicated online platform. Importantly, this has been achieved while maintaining the highest methodological standards to meet the requirements of approval by the NHMRC[7].

The guidelines currently include 120 recommendations covering primary, acute and critical care for adults, children and adolescents, older people, people receiving palliative care, and pregnant and post-partum women. They have been **viewed more than 285,000 times, by more than 175,000 individual users, in more than 180 countries around the world.** They have also received widespread acclaim for setting a new benchmark for evidence-based health care.

Investment in Phase Two of the Living Evidence initiative represents a key opportunity to ensure the significant knowledge and expertise generated through the Taskforce project can be leveraged to deliver benefit to a much larger number of Australians, particularly those disproportionately affected by chronic disease—First Nations People and those living in rural and remote communities where research often takes years to impact health care and outcomes.

> "The Australian experience of creating living guidelines to inform the management of the COVID-19 pandemic [is an] extraordinary programme of work and the degree of inter-organisational collaboration is astounding.
>
> Is this the shape of the future?"
>
> David Tovey FRCGP
> Senior Adviser COVID-END and COVID-NMA
> Co-Editor in Chief, Journal of Clinical Epidemiology (JCE)

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National impact

Living Evidence Phase Two

To enable the Consortium to build on this early success and catalyse transformative change in the way evidence is generated and used in Australian health care, Phase Two will be delivered through four pillars:

Pillar 1   **Establishing a national Living Evidence support hub:** to develop best-practice methods and process Train, support and build quality and capacity and coordinate and standardise approaches.

Pillar 2   **Building a Living Evidence digital technologies platform:** to further develop, enhance and integrate technical systems and digital solutions, reducing unit costs and time.

Pillar 3   **Producing Living Guidelines:** to deliver and maintain Living Guidelines (to NHMRC standards) for five of Australia's most high-burden diseases—stroke, diabetes, heart disease, kidney disease and musculoskeletal conditions including arthritis.

Pillar 4   **Getting the latest evidence to where it's needed**: to optimise the dissemination and utility of evidence-based guidance and partner with Australia's leaders in knowledge translation to drive practice and policy change.

Key outcomes to be delivered

The Consortium will measure and report key performance indicators across three key benefit domains to be delivered through this initiative:

- **Rapidly bringing research discoveries to point-of-care and decision-making :** Accelerating the impact of investment in health and medical research by more rapidly translating findings into reliable, actionable guidance that can be used by health care professionals to deliver better care.
  Targeting
     a)   80% reduction in time from publication of research to incorporation in evidence-based guidelines

- **Drive health system value through accelerated co-production of guidance based on the latest research:** Enabling knowledge translation and improving health system productivity by engaging more patients, health care professionals and policymakers in maintaining an up-to-date source of evidence-based guidance on the most effective health care interventions and services.
  Targeting
     a)   50% reduction in the time to complete key tasks for evidence synthesis
     b)   25% reduction in time to update guidelines to NHMRC standards
     c)   300% increase in the number of patients and clinicians involved in living guideline development

- **Give patients more opportunities to be active participants in their health care:** Actively involving patients and communities in creating a single source of truth that can be used to inform discussions about their health care.
  Targeting
     a)   300% increase in clinical guideline users
     b)   30,000 monthly users of decision aids and tools

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Better evidence systems, better patient outcomes, better value care

Economic benefits

In the medium to longer term, the Living Evidence program has the potential to yield substantial economic benefits through improvements in patient outcomes and more efficient expenditure on health care and services.

Economic modelling was undertaken to evaluate the potential impact of near real-time updating versus conventional updating of guideline recommendations (every five years or more) following publication of practice-changing evidence for a new intervention. The following two case studies were used:

- A highly effective (and cost-effective) nurse-led intervention for managing fever, hyperglycaemia and swallowing after stroke (FeSS protocol).

- The addition of a new class of drug, sodium glucose co-transporter 2 (SGLT2) inhibitors, to current standard care for people with type 2 diabetes (T2DM) and cardiovascular disease (CVD).

Based on conservative assumptions, the net social benefit delivered by Living Guidelines in these two case study areas only would be $292M ($1,107 per affected person) and [discounted] $944.2M ($13,584 per affected person), respectively[8].

These figures reflect the substantial value Living Evidence can deliver, both from a financial and health benefits perspective. If Living Guidelines were to be implemented across more diseases and health care interventions, the overall benefits to the Australian economy would likely far exceed these figures.

Healthcare system benefits

By greatly improving the currency and reliability of clinical guidelines, the Living Evidence Phase Two program will offer a new mechanism for addressing two of the key challenges in improving value in health care:

- **Identify high and low value interventions more rapidly**

- **Adopt or abandon high and low value interventions more effectively** [9]

The program will also have relevance for other health and economic policy levers (e.g. standards, accreditation, public and private reimbursement, value-based models), and for other critical policy challenges in sectors such as education, justice, social disadvantage and early childhood development.

More than $1.2 billion...

The net societal benefit of implementing new guidance within the first year of practice-changing evidence becoming available for just two interventions in stroke and diabetes.

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A national **partnership** approach

Funding strategy

A detailed business case developed in partnership with the Victorian Government and EY in 2020 sets out a comprehensive, multi-partner funding strategy to deliver Living Evidence Phase Two as a national initiative*.

The program has been costed at a total **$24.5 million** over four years.

The Consortium is seeking a total commitment of $8 million from the Australian Government in the 2021-22 federal budget ($2.8 million in 2021-22, plus $5.2 million over the forward estimates).

In addition, States and Territories have been approached to contribute a combined $10 million, and a further $4.5 million will be sought from major philanthropic organisations ($2 million has already been committed by the Ian Potter Foundation).

The Consortium will dedicate these funds, together with significant in-kind contributions in the form of staff time and resources, health care professional time, the existing capabilities of the National COVID-19 Clinical Evidence Taskforce initiative, and existing research funding and partnerships contributing to the delivery of the Phase Two program (estimated total >$10 million).

	2021-22	2022-23	2023-24	2024-25	Total ($millions)
Australian Government	**$2.80**	**$2.80**	**$1.80**	**$0.60**	**$8.00**
State and Territory Governments	$3.80	$3.80	$1.75	$0.65	$10.00
Philanthropy	$2.00	$1.40	$0.85	$0.25	$4.50
Program-generated (grants, service fees)	–	$0.40	$0.70	$0.90	$2.00
Total	$8.60	$8.00	$4.40	$1.50	$24.50

NB. Columns may not add due to rounding in base tables

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* Australian Living Evidence Consortium 2019, **Accelerating research to point-of-care. Living Evidence Phase Two: Business case for investment.**

A full copy of the business case, including detailed program costings, is available on request

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[9] Badgery-Parker T, Pearson S, Chalmers K, et al. "Low-value care in Australian public hospitals: prevalence and trends over time", BMJ Quality & Safety (2019); 28:205-214.

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