HMRI
Hunter Medical Research Institute

The Medical Research Future Fund; doubling the federal funding of medical research in Australia

2 May 2016

Professor Michael Nilsson
Director
Hunter Medical Research Institute, Australia

In partnership with our community

THE UNIVERSITY OF NEWCASTLE AUSTRALIA

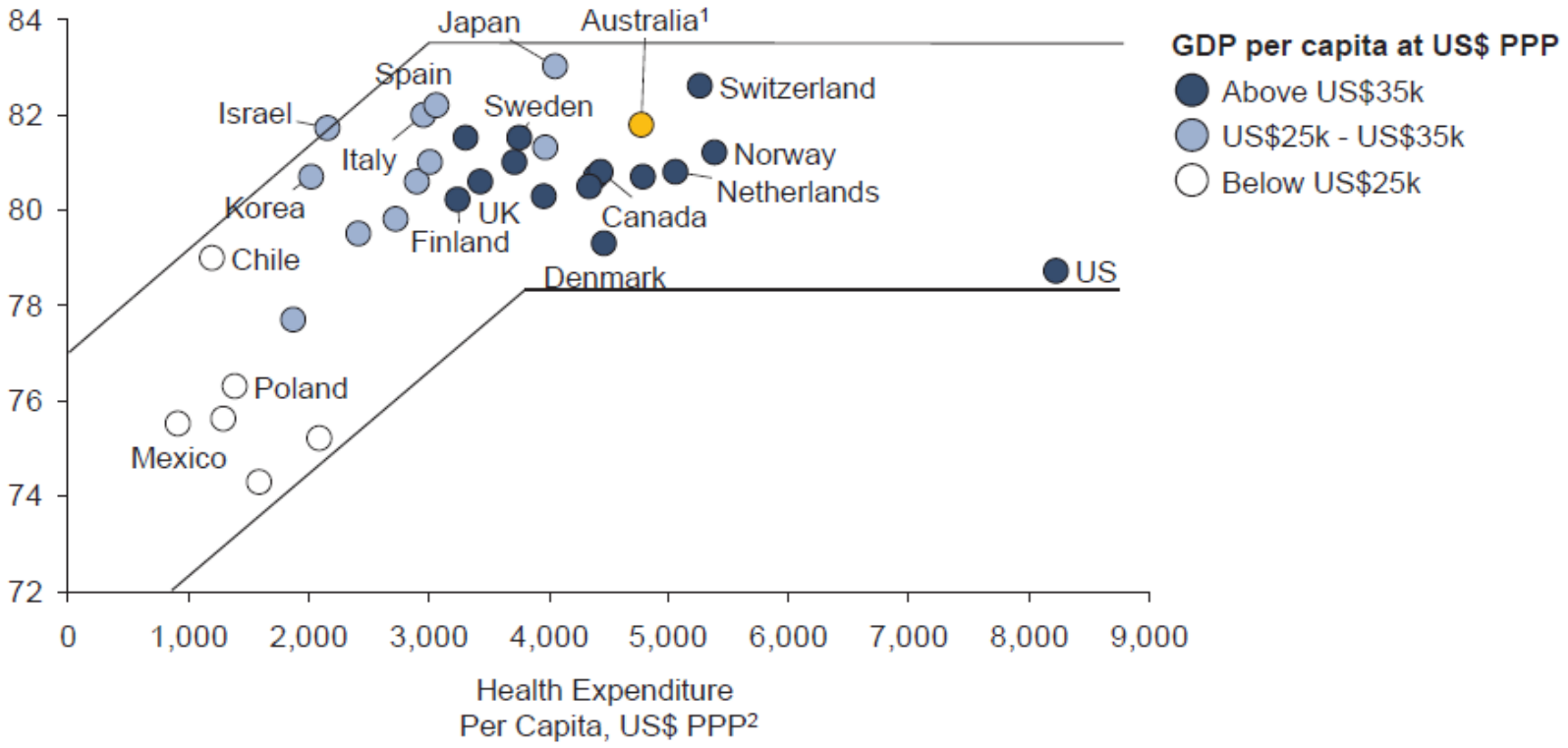
NSW GOVERNMENT Health
Hunter New England Local Health District

Hunter Medical Research Institute (HMRI)

A multi-disciplinary health and medical research institute based in the Hunter Region of New South Wales, Australia.

A well performing health system

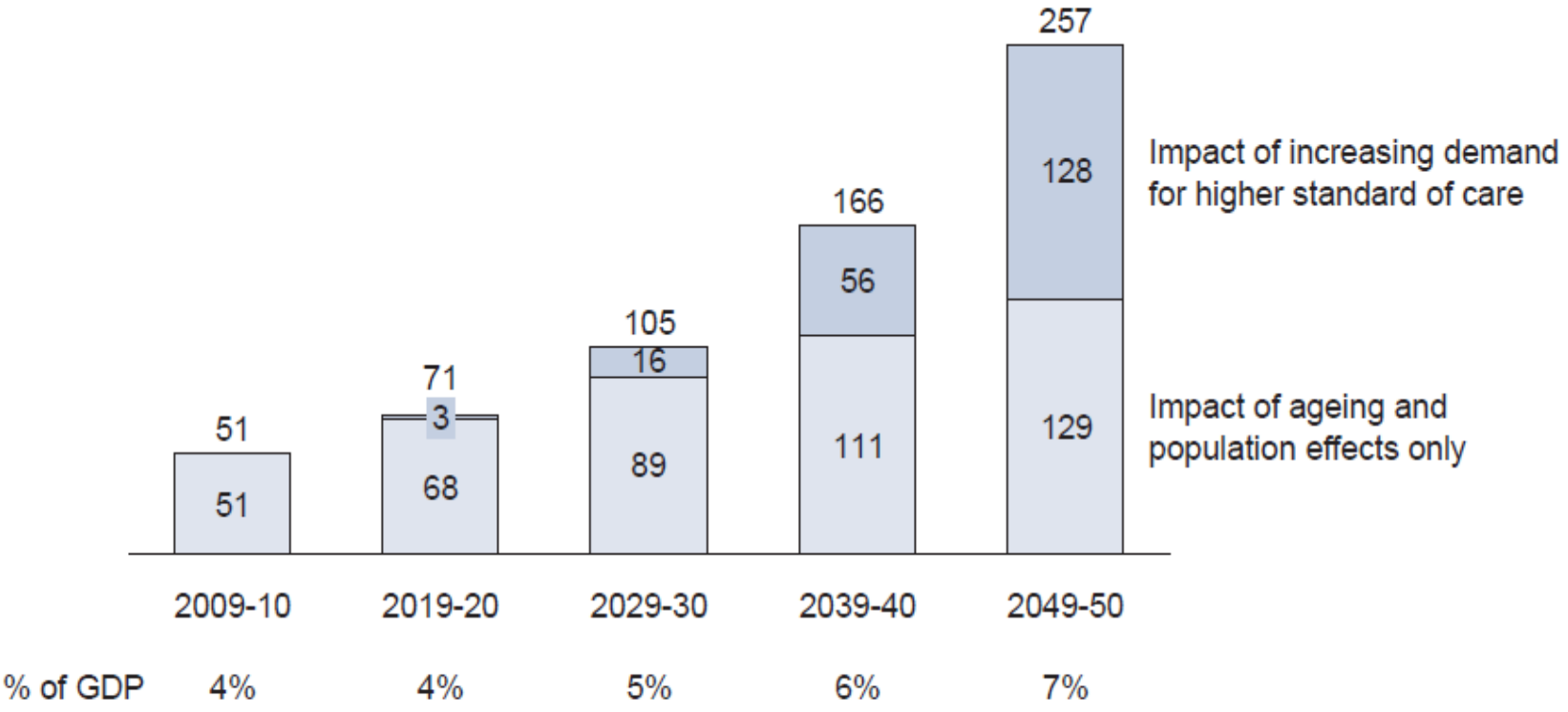
Life Expectancy Versus Health Expenditure
2010



Notes: 1. Australia's per capita GDP is above US$35k
2. PPP – purchasing power parity
Source: OECD, Pacific Strategy Partners analysis

Health expenditure is unsustainable

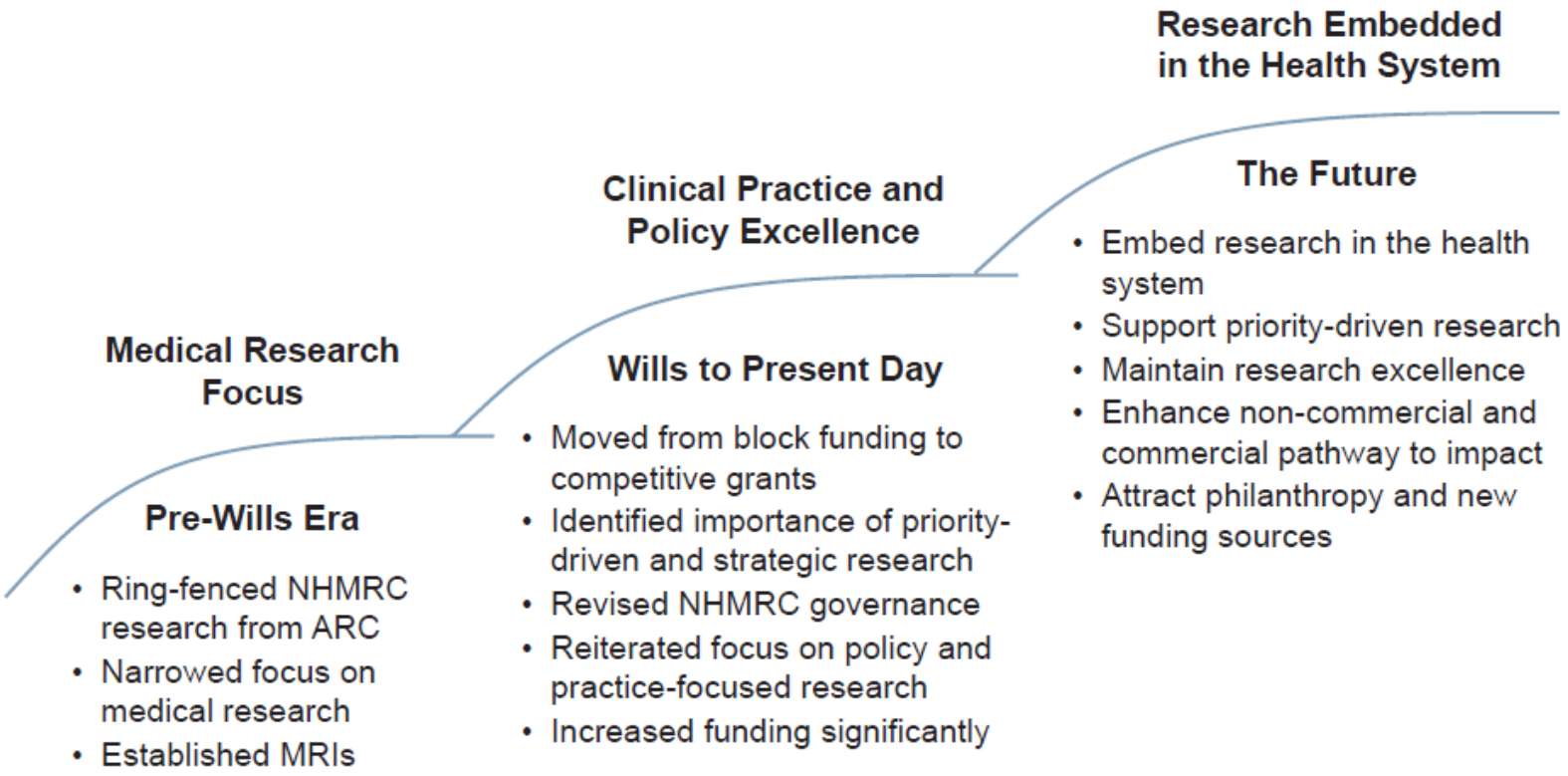
Treasury Projections of Australian Government Health Expenditure[1]
$bn



Notes: 1. Excludes state and territory government health expenditure
Source: Australian Government, *Intergenerational Report 2010,* Canberra, 2010

Major HMR reviews

Eras of Australian HMR



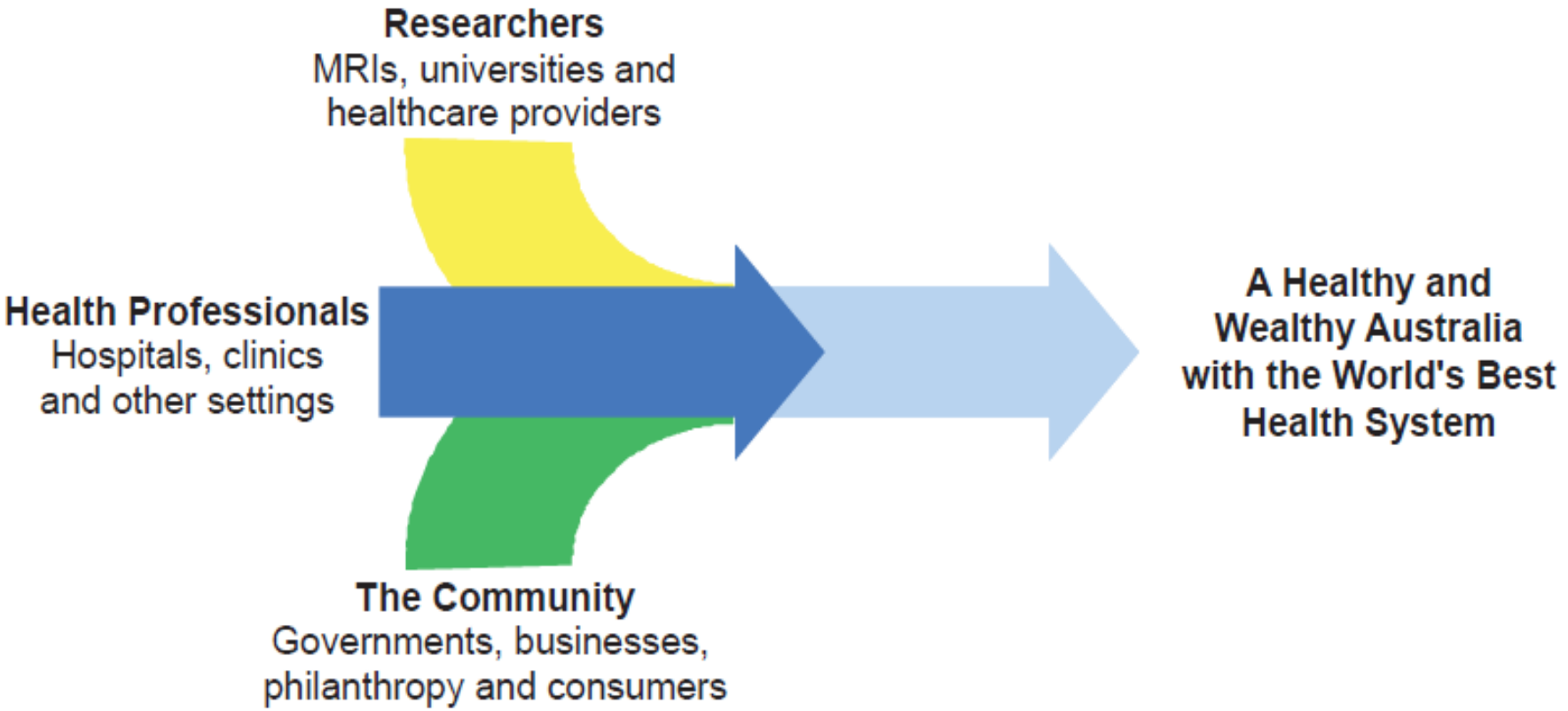
The McKeon Review (Australia)

Strategy

Build HMR Capability	*Accelerate Translation*	*Optimise Investment*	*Deliver Outcomes*
• Enhance commercialisation environment (17) – Foster a culture of commercialisation – Leverage scale and expertise	• Enhance commercialisation environment (17) – Attract clinical trials investment from overseas	• Support research commercialisation (16) – Matching development grants – Translational Biotech Fund	– Increase longevity and quality of life – Boost national wealth – Drive shift to knowledge-based jobs – Enhance international standing and engagement with Asia
• Build health professional research capacity (4) • Enhance public health research (12) • Enhance health services research (13)	• Establish Integrated Health Research Centres (3) • Accelerate clinical trial reforms (5) • Drive health system innovation (14) • Inform policy with evidence (15)	• Drive research activity in the health system (1)	– Build and maintain the world's best health system – Deliver evidence-based healthcare and policy through research
• Support a range of strategic topics (7) • Maintain research excellence in discovery and applied research – HMR workforce (8) – Grant processes (9) – Indirect cost support (10) – Enabling infrastructure (11)	• Establish sector leadership (2)	• Align priority-setting processes (6) • Attract philanthropy (18) • Identify new funding sources (19) • Invest for the future (20) • Action report recommendations (21)	– Leverage and extend reforms – Maintain world-class research – Focus on translation and impact – Monitor investment and outcomes

Note: Numbers in parentheses refer to report recommendations

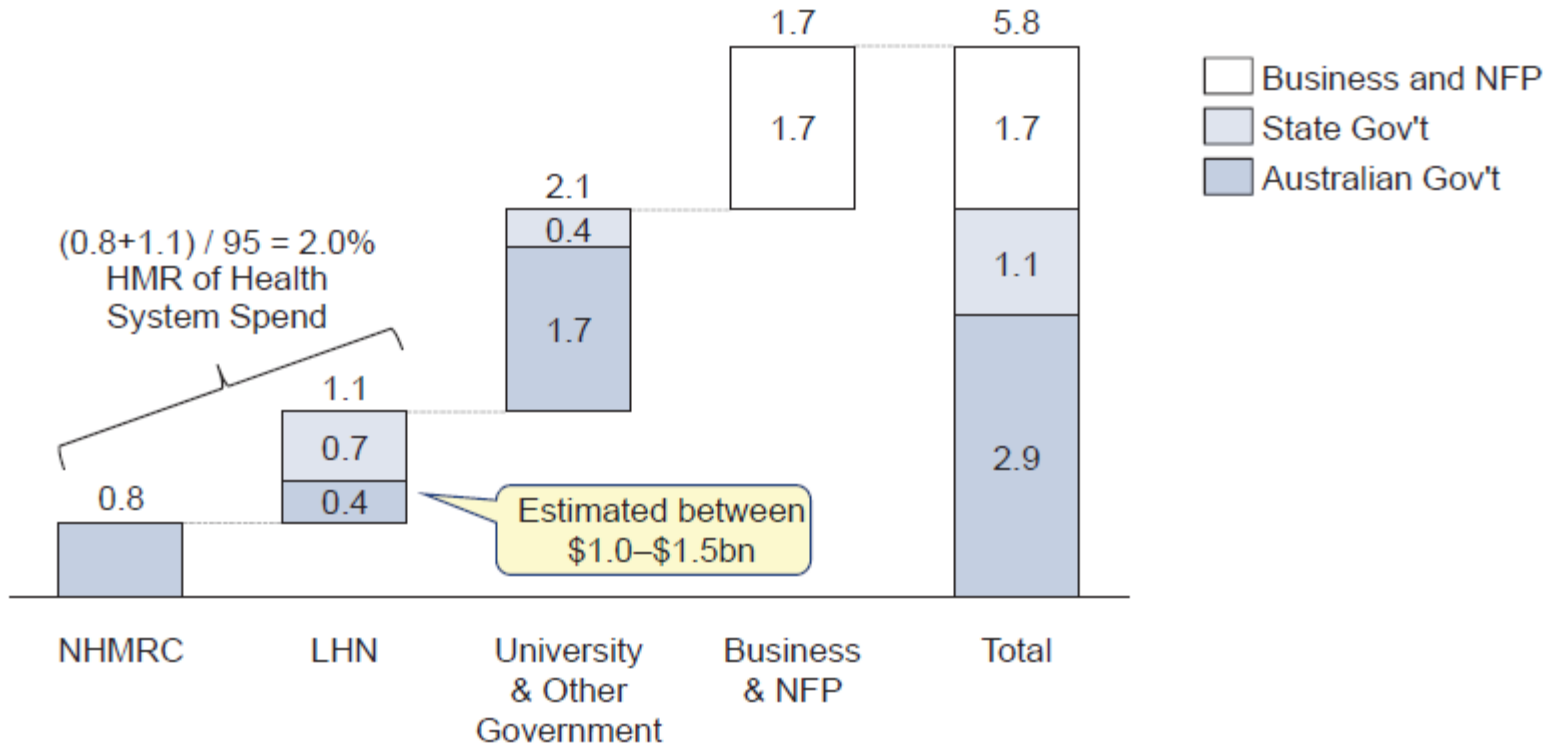
Delivery through partnerships



'Better Health Through Research'

HMR investment (Australia)

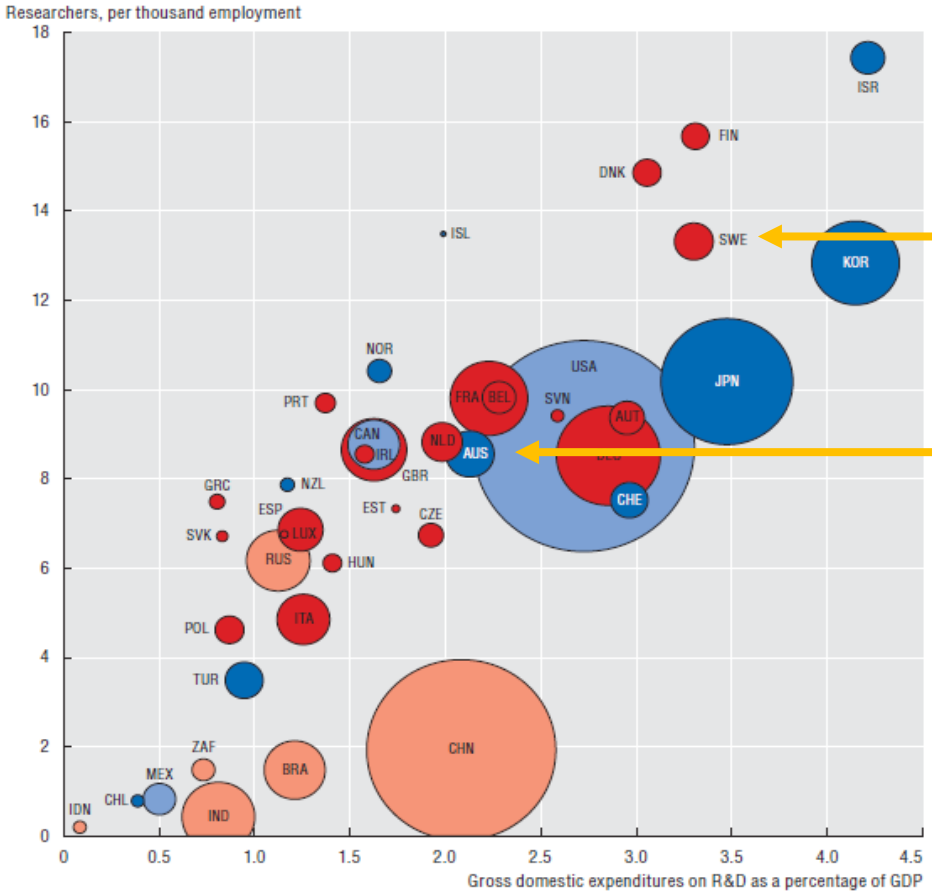
Total HMR Investment[1]
$bn
2011–12e



Source: Treasury; DoHA; NHMRC; ABS; AIHW; Pacific Strategy Partners analysis

Research spending and employment:

Australia in the middle of the EU spectrum

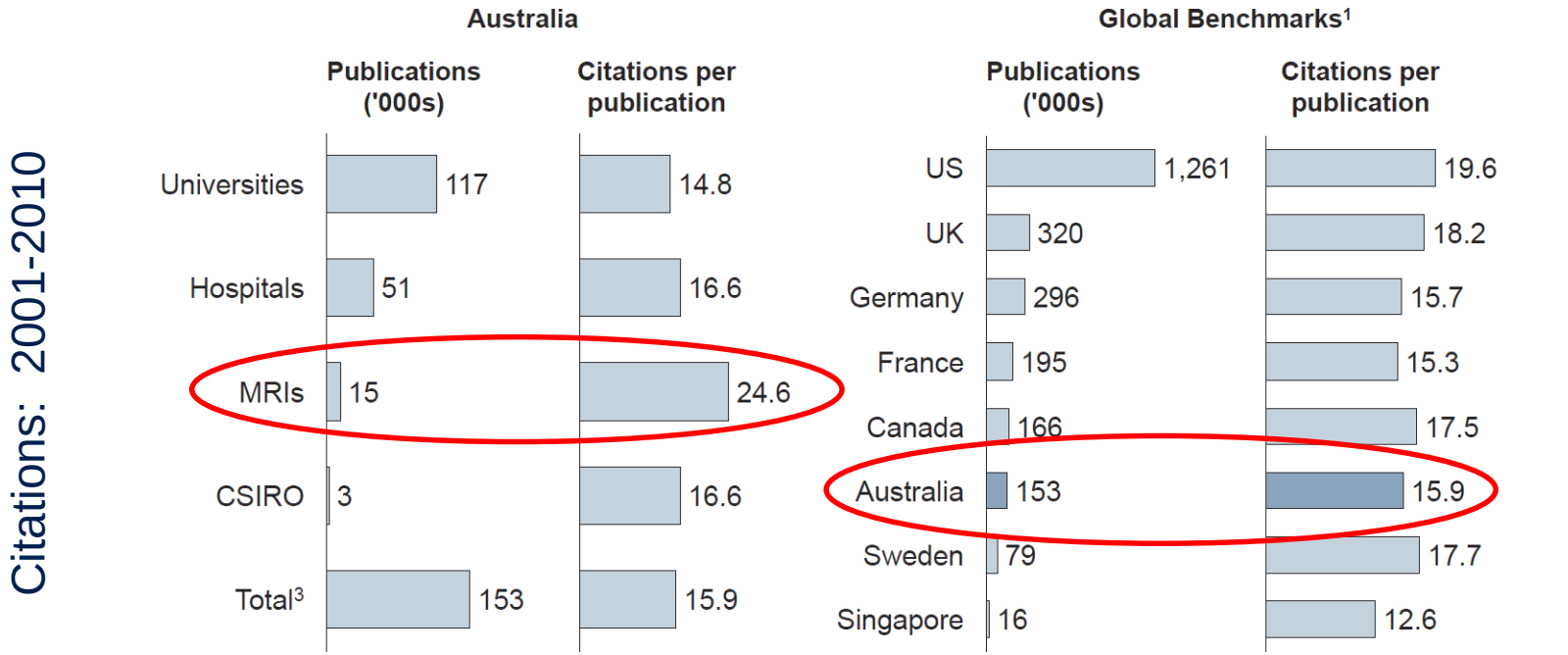


Sweden

Australia

Citation metrics

Australia performs well – particularly from MRIs



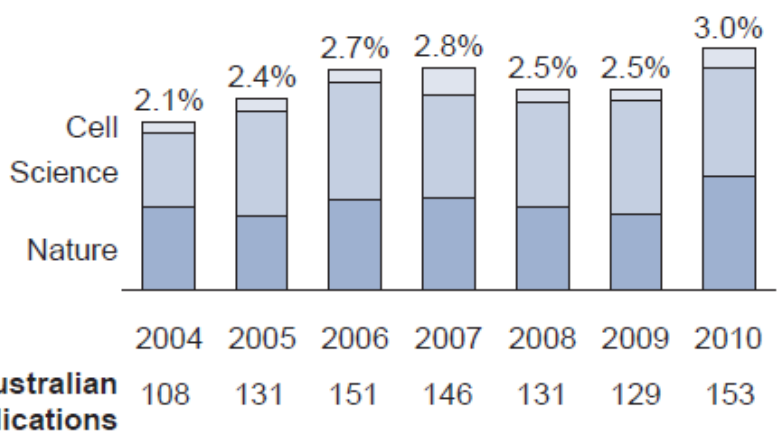
Notes:
1. Covers journals in HMR-related fields (Biology & Biochemistry, Clinical Medicine, Immunology, Molecular Biology & Genetics, Neuroscience & Behaviour, Pharmacology & Toxicology)
2. Australian figures in international dataset aligned to domestic (CPP difference of 15.9 vs. 15.4 and number of publications of 153k vs. 107k)
3. Sum of segments do not add to total due to double counting

SOURCE: Strategic Review of Health and Medical Research in Australia – Better Health Through Research. Canberra, Commonwealth of Australia, Department of Health and Ageing.

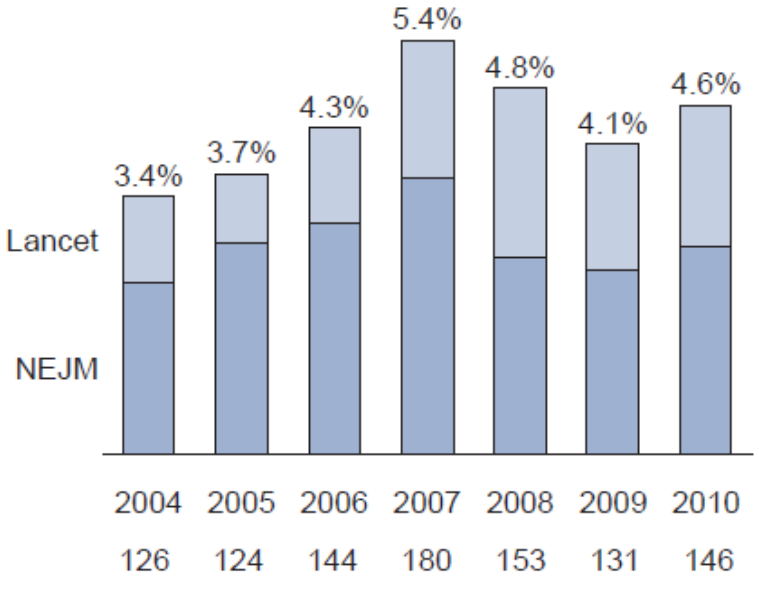
HMR performance (journals)

Australia's Share of Global Publications in Selected Journals[1]
% Share of Total Publications

Three Fundamental Science Journals: Science, Cell and Nature



Two Key Clinical & Public Health Oriented Journals: The Lancet & NEJM[2]

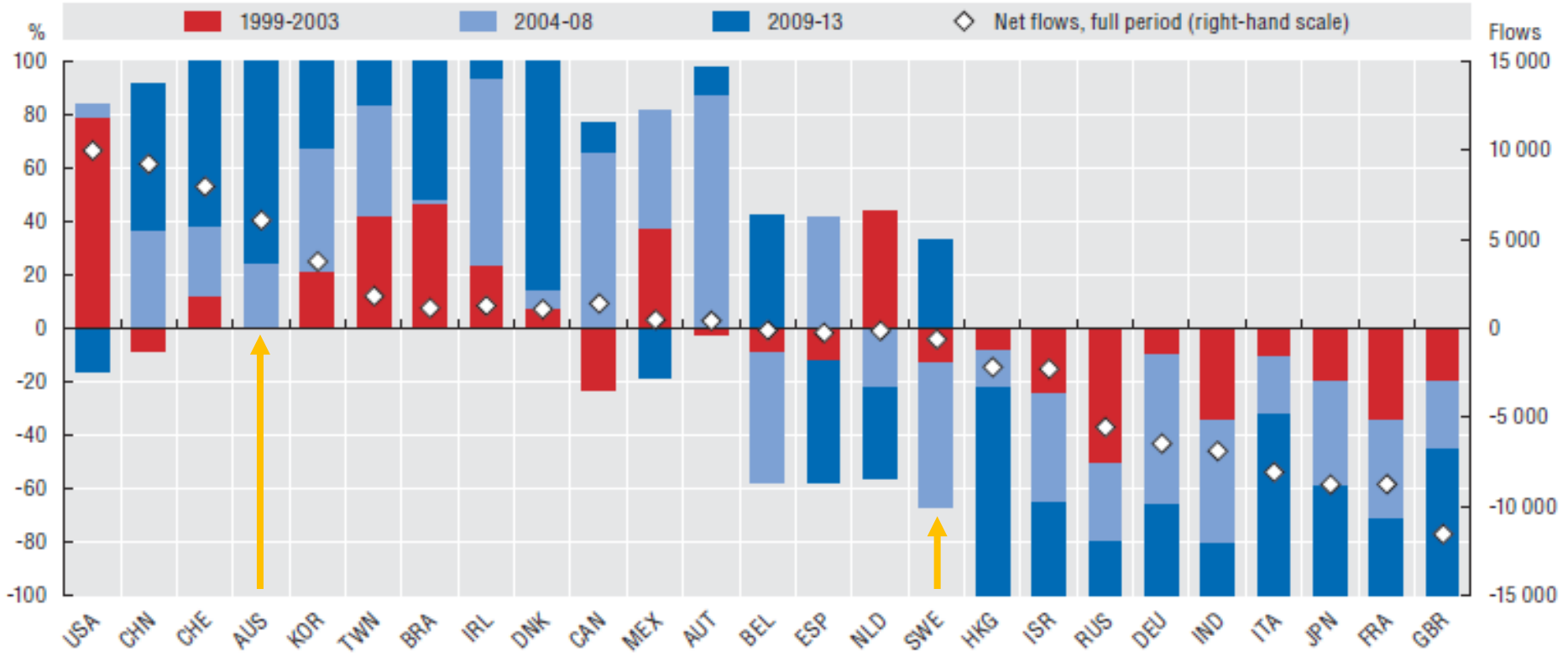


Notes: 1. Australia is estimated to account for ~1.1% of health R&D and ~1.8% of global GDP, but ~3.6% of the above health and medical publications
2. New England Journal of Medicine

Source: Thomson Reuters; MA Burke & J-J Monot, 'Global financing and flows', Chapter 2 in *Monitoring Financial Flows in Health Research 2006*, pp.33-62, 2006

Where are researchers heading?

International net flows of researchers: 1999 to 2013



SOURCE: OECD Science, Technology and Industry Scoreboard 2015

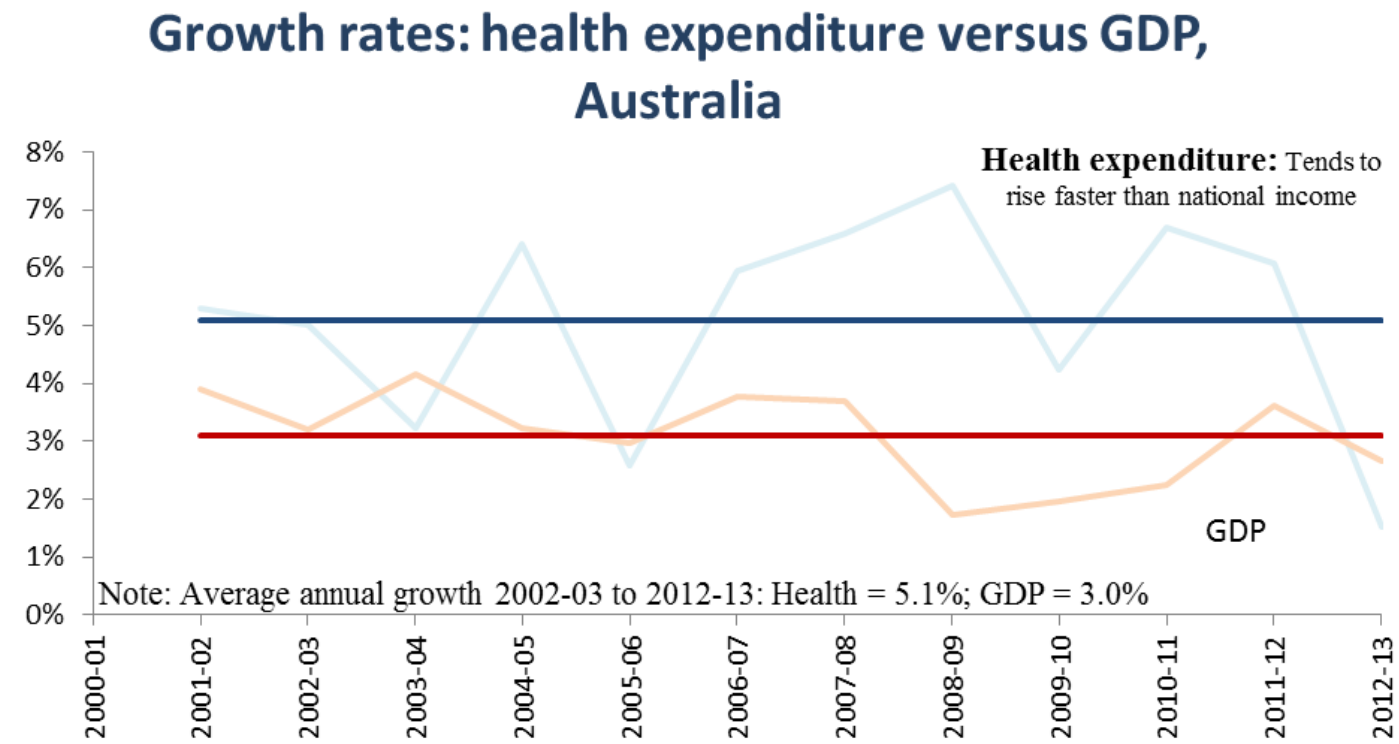
Who is collaborating?

Room for improvement in Australia's record

International collaboration in science and innovation: 2003-12

SOURCE: OECD Science, Technology and Industry Scoreboard 2015

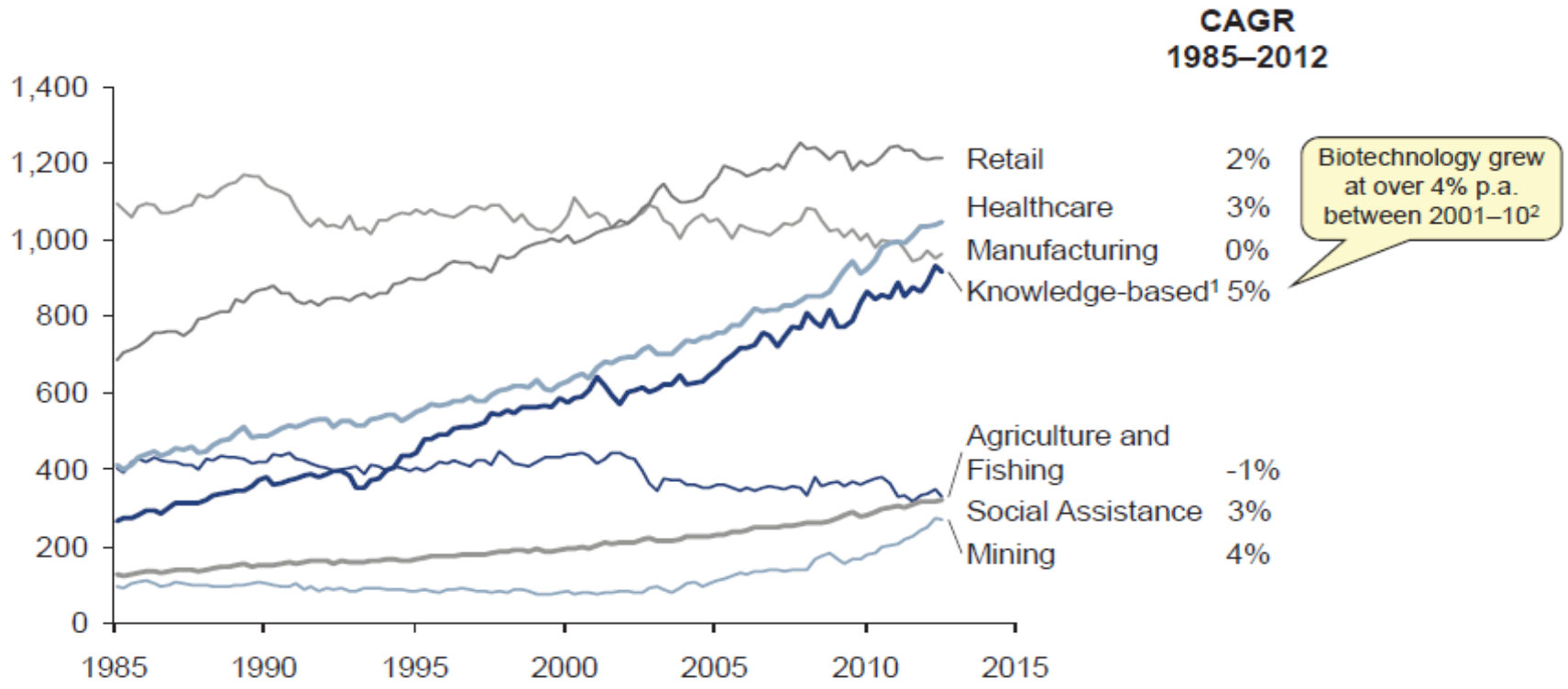
Drivers of policy change in Australia:



Note: Constant prices, 2012-13 base year
Source: AIHW

A shifting industry landscape

Employment by Industry
'000 Employees



Notes: 1. Comprises professional, technical and scientific services
2. Growth of HMR workforce not tracked—industry groups are derived using 2011 split of services
Source: Australian Bureau of Statistics, IBISWorld

Drivers of policy change in Australia

More expected – we are missing opportunities

1. Expected consequence of funding health & medical research => generate a **positive impact** reflected by, **improved health policy**, **better health system performance**, and **enhanced health states**.
2. Evidence suggests the flow of knowledge through the translational pipeline is **not optimal**.
3. Despite significant investment, effective and **cost-effective findings are not being fully implemented by healthcare systems and are not being appropriately used** by others in scientific research chain.

Policy makers now asking:

"Is the spending choice returning value for money?"

Policy change in Australia

The policy environment is changing (changed)…

- **Consequence** of sub optimal research translation: health services and patients are not always using or receiving the most effective or cost-effective prevention or treatment
- **Message** government and major research funders (public and private) is that the **promotion of research impact is critical**
- Major funders (e.g. ARC & NHMRC and Cancer Institute) are increasing their focus on “translation” and “impact”
- Must **facilitate** and **demonstrate** research translation & impact

Policy change in Australia

The policy environment is changing (changed)…

Central to future research funding

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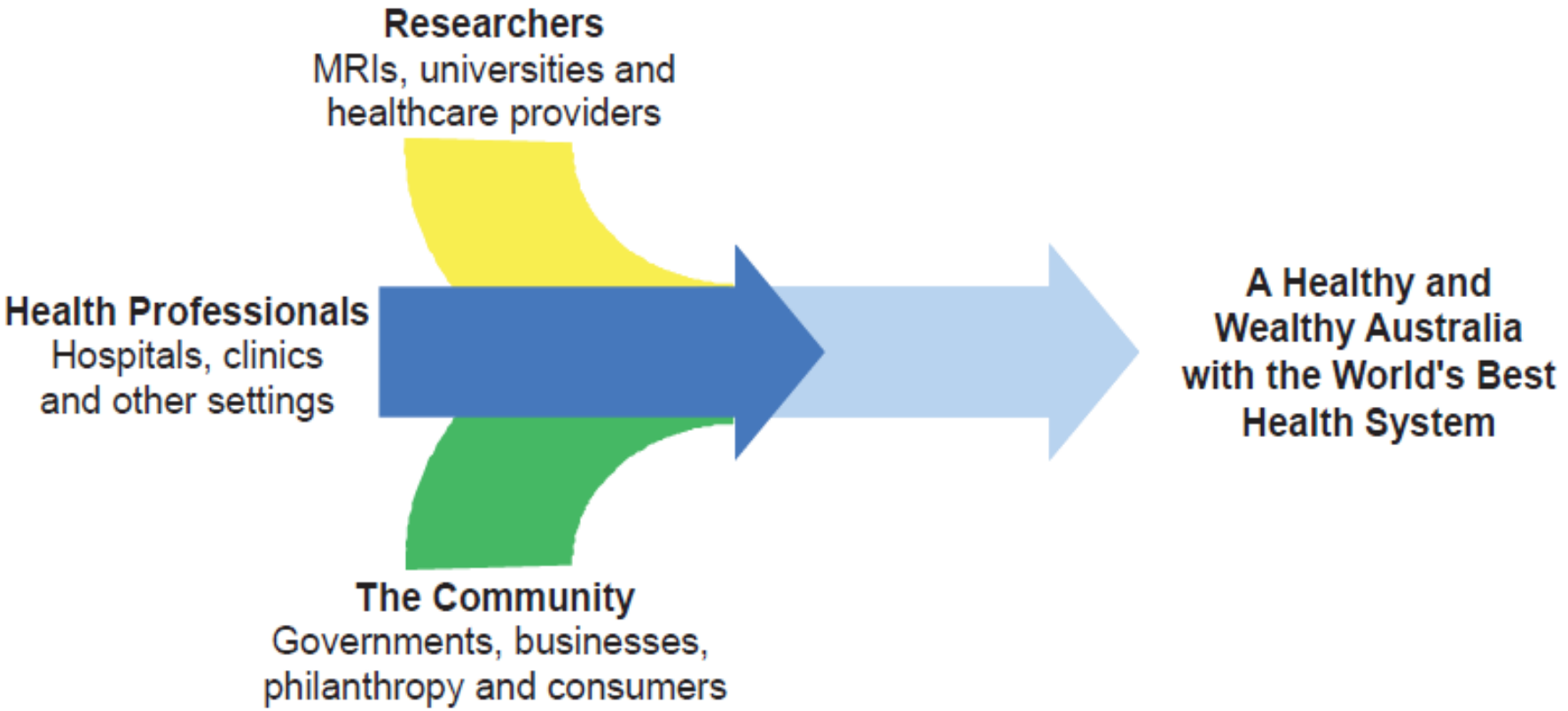
Requires a
shift in research culture

Delivery through partnerships



'Better Health Through Research'

Policy change in Australia

Policy focusing on collaboration and measuring impact

National Innovation and Science Agenda

Promotion of translation, through better engagement with end-users, and measurement of impact

Innovation statement: PM Malcolm Turnbull calls for 'ideas boom' as he unveils $1b vision for Australia's future

By political reporters Eliza Borrello and Francis Keany

Updated 13 minutes ago

The Federal Government will spend almost $1.1 billion in the next four years to promote business-based research, development and innovation.

Prime Minister Malcolm Turnbull unveiled his much-anticipated Innovation Statement in Canberra today, saying he wanted to drive a so-called "ideas boom".

A key focus of the plan revolves around strengthening ties between the business community, universities and scientific institutions.

PHOTO: Malcolm Turnbull and Christopher Pyne unveil the

Policy change in Australia

Policy focusing on collaboration and measuring impact

- Biomedical Translation Fund ($250 million)
- Driving greater collaboration between university and industry
- Measuring impact and engagement in university research

Policy change in Australia

Status of the new policy

- Improve collaboration and increase impact ***beyond academic achievement***;
- Two working groups have been formed to assist in the development of research engagement and impact assessment framework for Australia;
- Working Groups helping develop indicators to support the measurement of ***engagement*** and ***impact***;
- Considers potential ***incentive*** effects of the impact measurement models – does it influence the decisions of universities about research focus?

Policy change in Australia

New policy direction providing new funding opportunities…

Medical Research Future Fund (MRFF)

- Accumulates funds from health portfolio savings: $20 billion by 2019-20;
- Complements existing funding sources (e.g. NHMRC) but focused to drive medical innovation in Australia
- Encourages collaboration between researchers, healthcare professionals, governments and the community
- ***Short-term*:** Funding disbursements over the next four years will be close to $400 million
- ***Longer-term*:** On maturity, anticipated that annual disbursements will be close to $1 billion per annum
- The ($20b) capital of the MRFF will be preserved – disbursements to be made from the fund's earnings.

Policy change in Australia

New policy direction providing new funding opportunities…

Medical Research Future Fund (MRFF)

Priorities determined by factors / issues such as:

- The burden of disease on the Australian community;
- How practical benefits from medical research can be delivered to Australians;
- How to ensure funding provides the greatest value for all Australians;
- How to ensure funding enhances other funding schemes.

HMRI response to the changing policy environment

A framework to (i) encourage research translation and (ii) measure research impact

Framework to **A**ssess the **I**mpact from **T**ranslational health research

FAIT

HMRI Framework for Assessing the Impact from Translational health-research

- Economists engaged to design a framework to
  (i) encourage and (ii) measure research translation & research impact;
- Based on modifications to proven impact measurement methods
- Designed to be ***implemented prospectively***
- Prospective implementation allows the use of ***performance monitoring and feedback*** – encourages desired research behaviours
- Requires the development of a Program Logic Model to articulate:
  - Community need
  - The research
  - The research outputs
  - The end-users
  - Anticipated impacts from using the research outputs.

HMRI Framework for Assessing the Impact from Translational health-research

- Accompanied by a ***funding scheme*** that reinforces, at **application stage**, the components of the impact measurement framework.

- The funding form requires applicants to conceptualise the translation pathway. Applicants must identify:

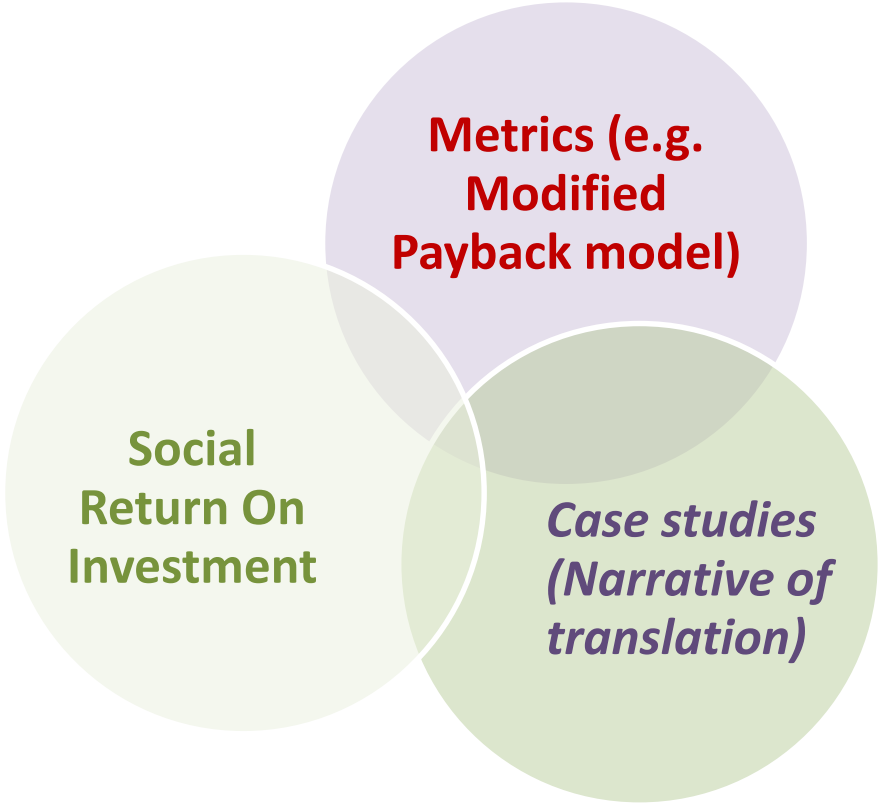
  - Community need
  - The research
  - The research outputs
  - The end-users
  - Anticipated impact

HMRI's Seven Research Programs

Aligned with University PRCs and HNE Health Clinical Streams

- **Brain and Mental Health**
  Stroke, Schizophrenia, Mental Health, Pain, Dementia
- **Cancer**
  Clinical Trials, Cellular and Molecular Oncology, Drug Development, Health Behaviour, Palliative Care, Psycho-oncology
- **Cardiovascular Health**
  Cardiophysiology, Clinical Cardiology, Nutraceuticals and Nutrition, Physical Activity, Obesity, Diabetes
- **Information Based Medicine**
  Genetics, Biomarker Discovery, Functional Brain Imaging, Radiation Oncology
- **Pregnancy and Reproduction**
  Infertility, Reproduction, Pregnancy, Premature Birth
- **Public Health**
  Ageing, Health Behaviour, Health Services Research, Health Risk
- **Viruses, Infection/Immunity, Vaccines & Asthma (VIVA)**
  Asthma, COPD, GI, Viral Oncolysis, Infection and Immunity

HMRI Framework for Assessing the Impact from Translational health-research



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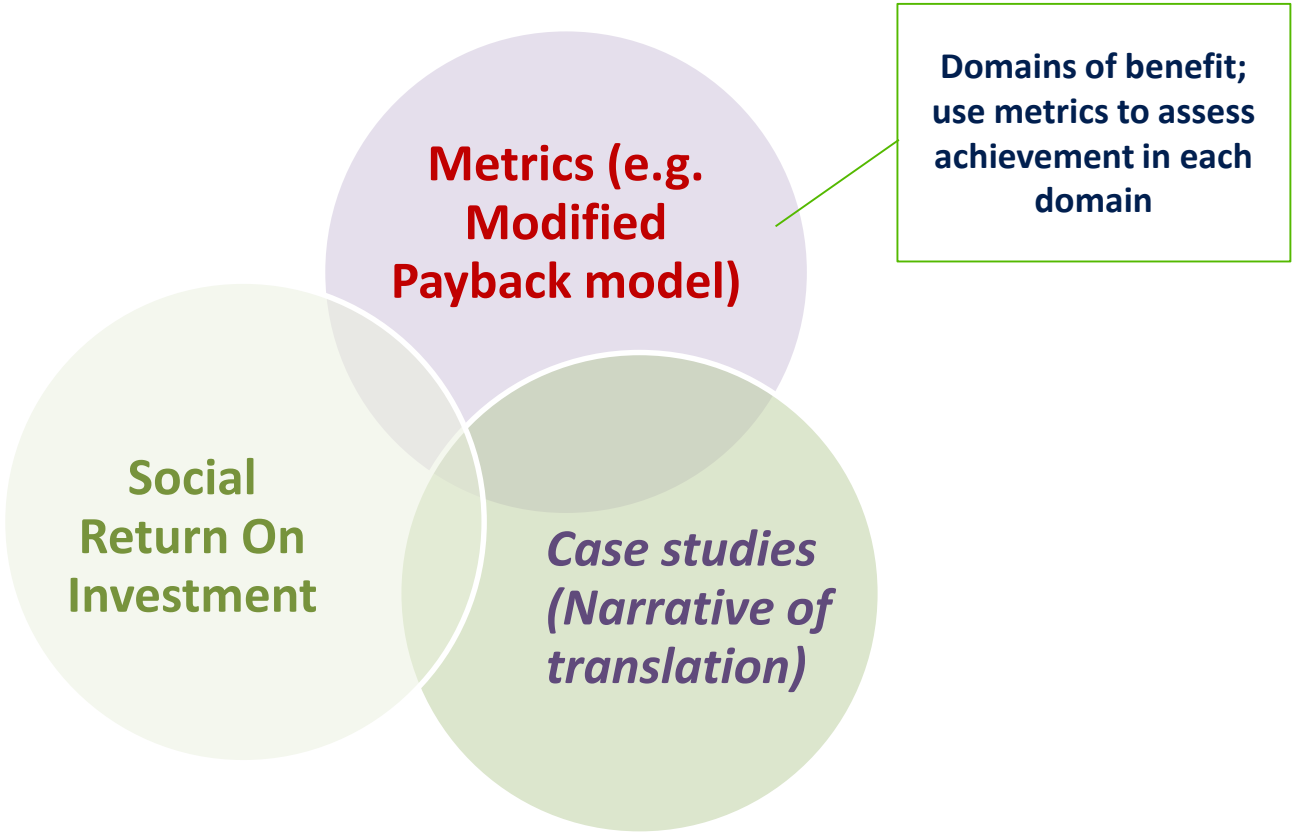
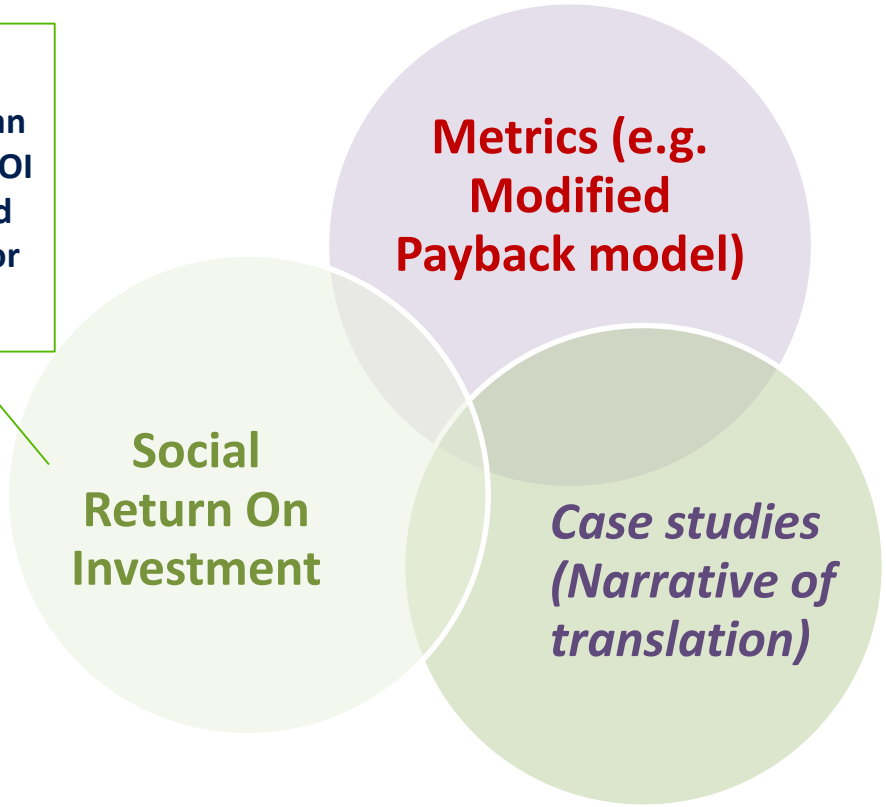
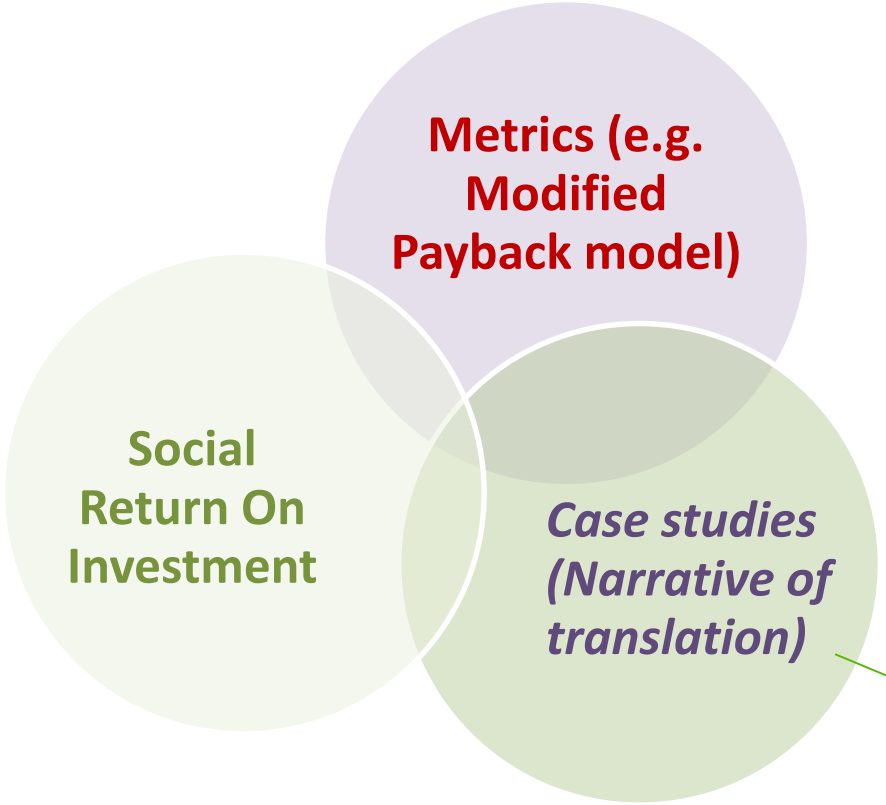


HMRI Framework for Assessing the Impact from Translational health-research

Social return on Investment (SROI), an economic metric. SROI is easily understood and reports value for money



HMRI Framework for Assessing the Impact from Translational health-research



Case studies; good for complex and lengthy translation pathways, good for explaining serendipitous research outcomes

HMRI Framework for Assessing the Impact from Translational health-research

Stages of FAIT's development

- Conceptual model based on a combination of proven methods
- Prospective data collection, based on **performance monitoring and feedback techniques**
- Peer reviewed article (under editorial review)
- Australian Dept. of Industry Innovation & Science funding
- Implementation in two NHMRC CREs
- In discussion with Australian Defence Force
- Collaboration with Brunel University & Karolinska Institute.

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THANK YOU!

2 May 2016

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