# Evaluating NHMRC's Investments in Dementia and Diabetes Research







### The challenge

The National Health and Medical Research Council (NHMRC) required a comprehensive evaluation of its research investments in dementia and diabetes from 2000-2024. With substantial funding commitments of \$622M for dementia and \$679M for diabetes research (2011-2024), NHMRC needed to understand the outputs, outcomes, and broader impacts of these investments to inform future funding strategies and demonstrate value for money.

### Our approach

- Leveraged Scopus, the world's largest abstract and citation database, to identify and analyze over 6,500 NHMRC-funded publications (3,834 diabetes publications, 2,762 dementia publications)
- Developed novel AI-driven methodologies to identify and classify health interventions documented in these NHMRC dementia and diabetes publications and downstream global publications citing them

- Combined data from multiple sources including:
  PATSTAT for patent analysis
  - Overton for policy document and clinical guideline citations
  - PlumX for media mentions and clinical guideline citations
  - Dealroom.co for tracking startup activity, crossreferenced with Scopus data on author affiliations startups founded by professors are often reflected in their listed affiliations within Scopus.
  - Clinical trial registries
- Conducted comparative benchmarking against other major funders including NIH, Wellcome Trust, and European Commission
- Created innovative AI-assisted impact narratives using large language models to capture broader societal benefits
- Combined recent and entering indicators in a novel panel of "impact-readiness" metrics, including academic-NGO collaboration, data sharing, intersectionality, multidisciplinarity, among others



#### Count of commercialized or trademarked health interventions



### The Result

The analysis delivered actionable insights across three key dimensions:

#### **Pathways to Impact**

- Novel approach combining next generation bibliometrics and generative AI identified 17 cases of economic, environmental, social, or health impacts.
- NHMRC knowledge impacts drive innovation in cutting-edge fields like AI-enhanced brain imaging, bioengineering, and gene editing
- Preliminary findings, using a bibliometric/LLM approach, show NHMRC's role in advancing cost-effective interventions that enhance well-being or prevent disease.
- Impact case studies showcase the breadth of NHMRC's contributions across dementia and diabetes domains and intervention types
- NHMRC-supported prevention programs have helped people with diabetes achieve lifestyle changes, including weight losses of 8% or more and empowered these individuals with greater knowledge and control over their disease.

#### **Research Outcomes**

- 9% of dementia and 15% of diabetes publications were cited in policy documents, surpassing global comparators
- Clinical guideline uptake was strong, with 4% of dementia and 8% of diabetes publications cited.
- NHMRC funded 153 clinical trials for dementia and 216 for diabetes.

- NHMRC has contributed to 44 commercialised or trademarked dementia interventions and 101 commercialised or trademarked diabetes interventions
- 13 dementia and diabetes Australian startups have benefited from NHMRC funding

#### **Research Outputs**

- The NHMRC demonstrated strong specialization in dementia (3.0% of NHRMC publication output) and diabetes (4.2% of NHRMC publication output) research, more than 2 times the global average
- The NHMRC has contributed to 445 distinct dementia interventions and 490 diabetes interventions since 2000
- 15,5% of NHMRC Diabetes papers shared their data, compared to 12,9% for funders worldwide
- There are more than 1,000 patent families citing NHRMC diabetes and dementia research

## The analysis provided NHMRC with evidence-based insights to:



Inform future funding strategies



Demonstrate their return on research investment



Identify opportunities to enhance impact through increased data sharing and cross-sector collaboration, among other enabling factors of impact readiness



Support policy decisions about research investment priorities

The project established new methodological approaches for impact assessment, combining traditional bibliometrics with AI-enabled analysis to provide a more comprehensive understanding of research impact pathways.



#### Clinical guideline uptake was strong, with 4% of dementia and 8% of diabetes publications cited.



Share of publications cited by clinical guidelines: Dementia

\*(excl. NHMRC-only funded papers)

Source: Overton, Scopus, PlumX



#### Share of publications cited by clinical guidelines: Diabetes

Source: Overton, Scopus, PlumX

Clinical guidelines are systematically developed documents that assist healthcare practitioners and patients in making decisions about appropriate healthcare for specific clinical circumstances. This metric evaluates the influence of academic research on evidence-based clinical practices or the development of new treatments, by measuring the share of publications referenced (cited) in the relevant literature. This reflects the influence and relevance of the research in clinical and medical applications.



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