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The Future of Digital Research Infrastructure

Emma CROTT

Australian Research Data Commons (ARDC)

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The Future of Digital Research Infrastructure



12 November
2024

PRESENTED BY

Dr Emma Crott
Chief of Staff, ARDC



Australian Government



Astronomy Australia Ltd.



Atlas of Living Australia
ala.org.au



AuScope



AUSTRALIAN ACCESS FEDERATION

Australian Centre for Disease Preparedness



Australian Centre for Neutron Scattering



ACCESS
Australian Earth System Simulator
National Research Infrastructure



ANFF
THE AUSTRALIAN NATIONAL FABRICATION FACILITY



aPPN
Australian Plant Phenomics Network



Australian Research Data Commons



AURIN
aurin.org.au



BIOPLATFORMS AUSTRALIA



ANSTO
Centre for Accelerator Science



EMBL Australia



HIA
HEAVY ION ACCELERATORS



IMOS
Integrated Marine Observing System



CSIRO
Marine National Facility



MICROSCOPY AUSTRALIA



NCI AUSTRALIA



ANSTO
National Deuterium Facility



NATIONAL IMAGING FACILITY



SEASIM
NATIONAL SEA SIMULATOR



pawsey



Phenomics Australia
Enabling precision medicine



PHRN
Population Health Research Network



COASTAL RESEARCH VESSEL FLEET



tern
Ecosystem Research Infrastructure



THERAPEUTIC INNOVATION AUSTRALIA

Supporting NCRIS Capability

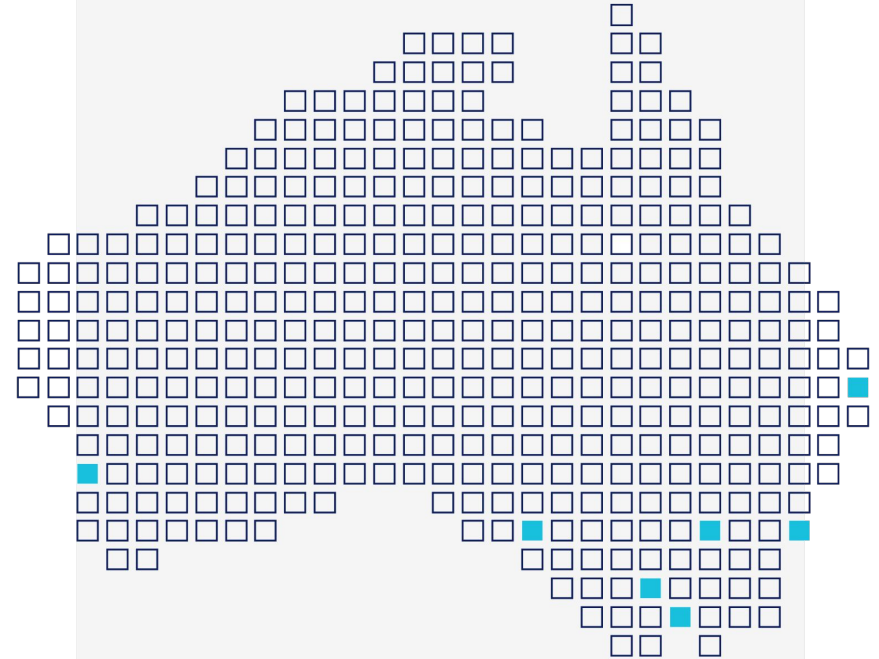


WHAT WE DO

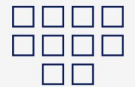
The ARDC runs programs and facilitates partnerships that ensure Australian researchers are internationally competitive by having access to high-quality data assets, platforms, infrastructure, policies, people and training to transform our lives.

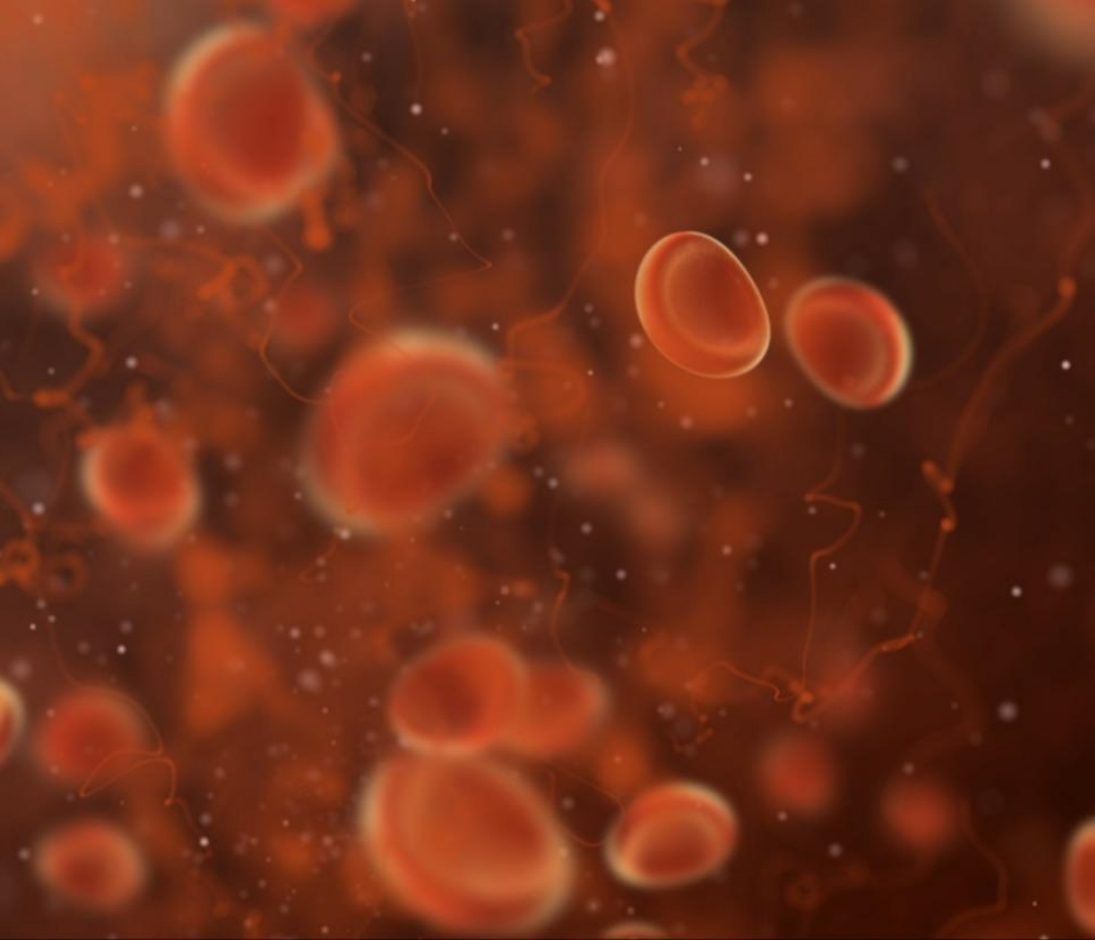


MEMBERS



ARDC HOST INSTITUTIONS

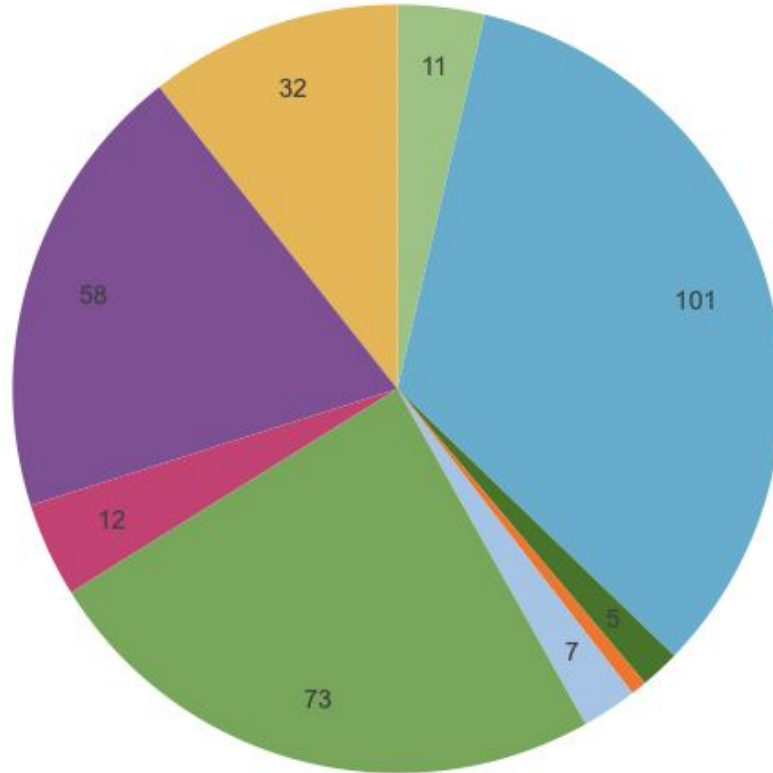


A microscopic view of several red blood cells (erythrocytes) against a dark brown background. The cells are biconcave and have a reddish-orange hue. Some cells are in sharp focus, while others are blurred in the foreground and background. Fine, hair-like structures are visible around the cells.

ARDC NATIONAL DATA ASSETS PROGRAM

- Multi-year program
- \$20 million+ investment
- Portfolio of national data assets
- Support leading-edge Australian research

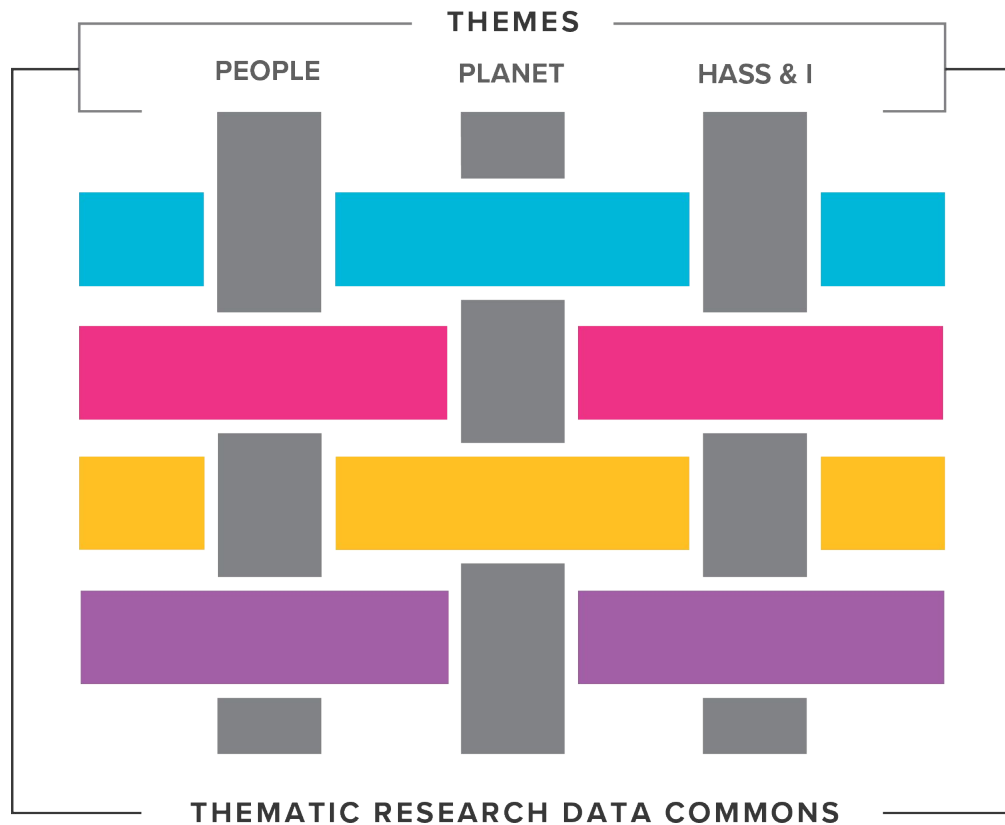
All Open Call Projects by Theme (count)



COMPETITIVE OPEN CALLS

- Significantly oversubscribed
- 30% success rate
- High number of bespoke solutions requested

THEMATIC RESEARCH DATA COMMONS





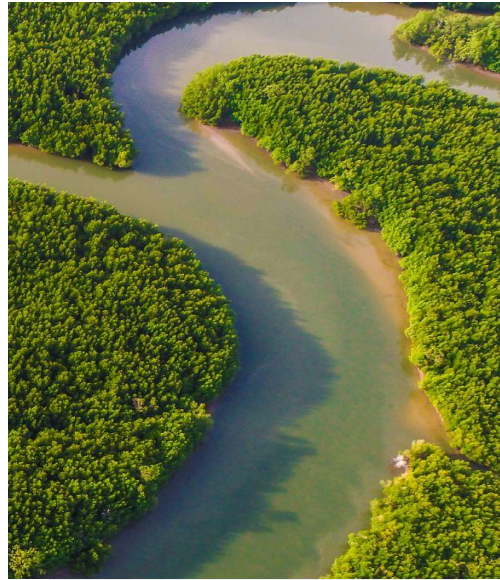
WHAT IS A RESEARCH DATA COMMONS?

A research data commons (RDC) brings together people, skills, data, and related resources such as storage, compute, software, and models to enable researchers to conduct world class data-intensive research.

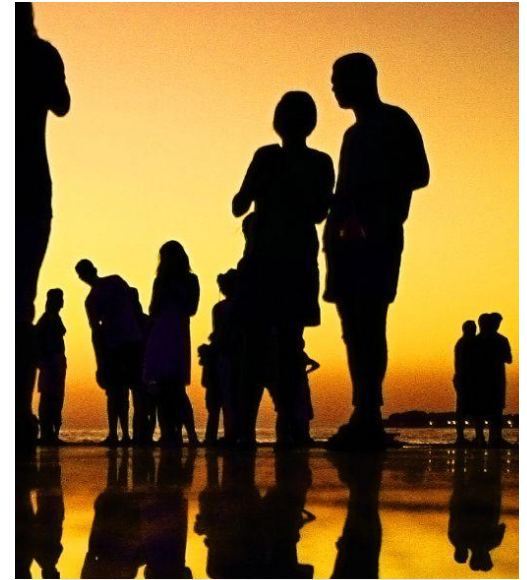
WORLD LEADING KNOWLEDGE INFRASTRUCTURE ENABLES AUSTRALIAN RESEARCHERS TO TRANSFORM OUR LIVES



PEOPLE RDC



PLANET RDC



HASS & I RDC



Australian Research Data Commons

STRATEGY ON A PAGE

ARDC Strategic Drivers

PROVIDE AUSTRALIAN RESEARCHERS WITH COMPETITIVE ADVANTAGE THROUGH DATA

DELIVER LEADING-EDGE DIGITAL RESEARCH INFRASTRUCTURE



THEMATIC RESEARCH
DATA COMMONS

GOAL

Enduring and targeted data infrastructure meets research community needs



NECTAR RESEARCH
CLOUD

GOAL

Nectar is a critical component of the national compute ecosystem



NATIONAL INFORMATION
INFRASTRUCTURE

GOAL

Services for the discovery, linkage and interoperability of data accelerate research and underpin research integrity



SKILLS

GOAL

ARDC provides national leadership in Digital Research Infrastructure (DRI) skills

CONTINUE TO DEVELOP THE ARDC HUB OF EXPERTISE THAT UNDERPINS ALL OUR WORK

NURTURE PARTNERSHIPS WITH OUR STAKEHOLDERS

PEOPLE RESEARCH DATA COMMONS

A national-scale data
infrastructure for health
research and research
translation



PEOPLE RDC - CONSULTATION

Feedback received from stakeholders/national committees:

- Australian Academy of Health & Medical Sciences: Data Steering Committee
- Australian Health Research Alliance: Data Driven Healthcare Committee
- HeSANDA Advisory Committee
- ARDC Research & Technology Advisory Committee
- NCRIS facilities
- Public roundtables



DATA CHALLENGES

Data Strategy & Discovery

Find and use data from multiple studies to update dietary guidelines on stroke management



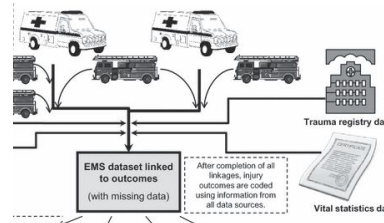
Secure Data Access

Safely access data from scores of longitudinal studies of brain ageing and dementia to transform the epidemiology of ageing and dementia.



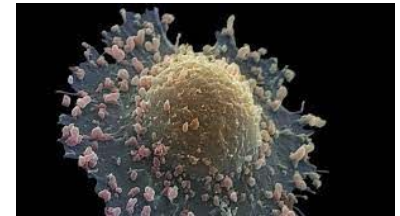
Data Integration

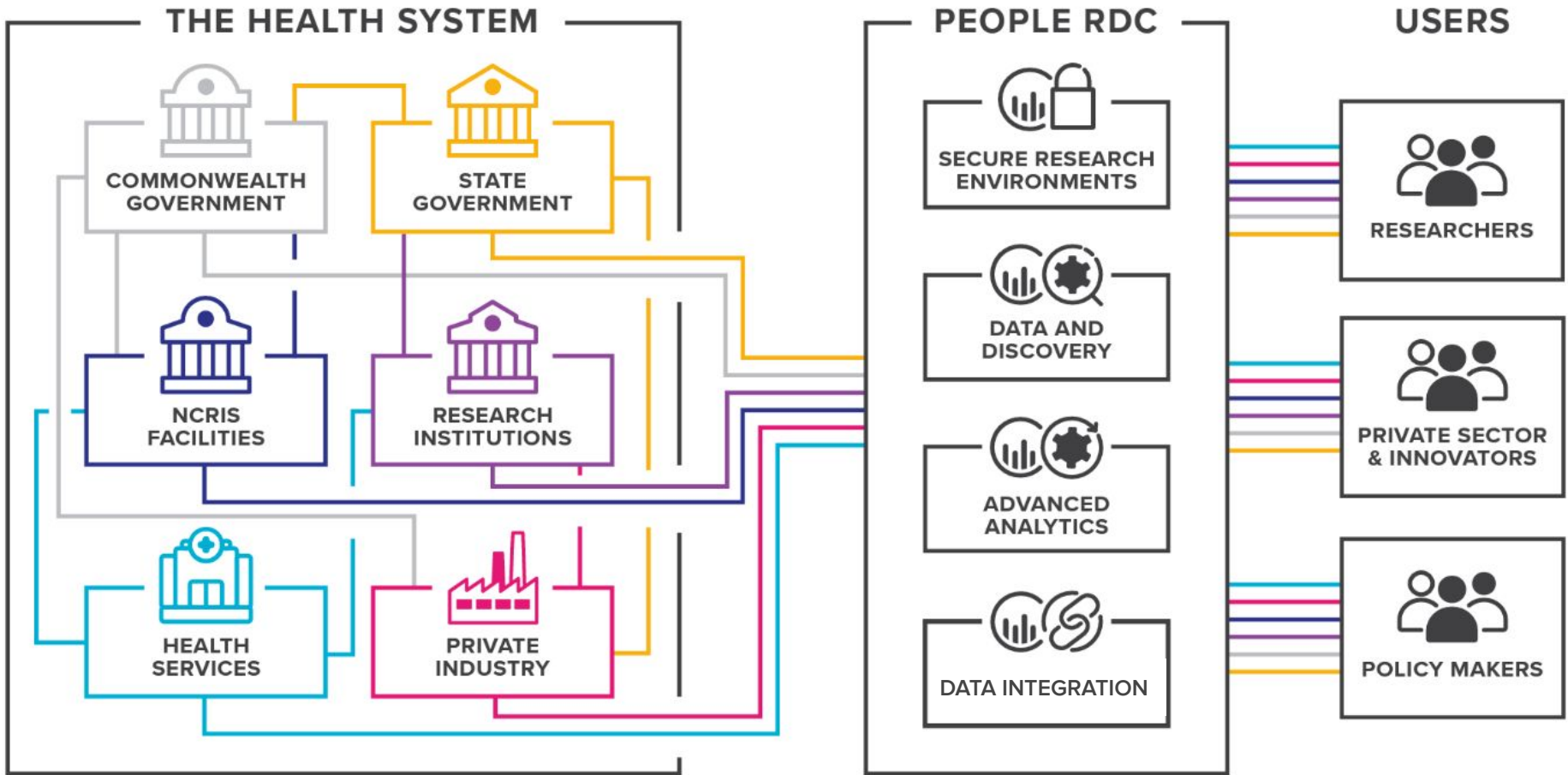
Improve outcomes for trauma patients, integrating data from the trauma registry, car accident claims, hospital EMR, and deaths registry



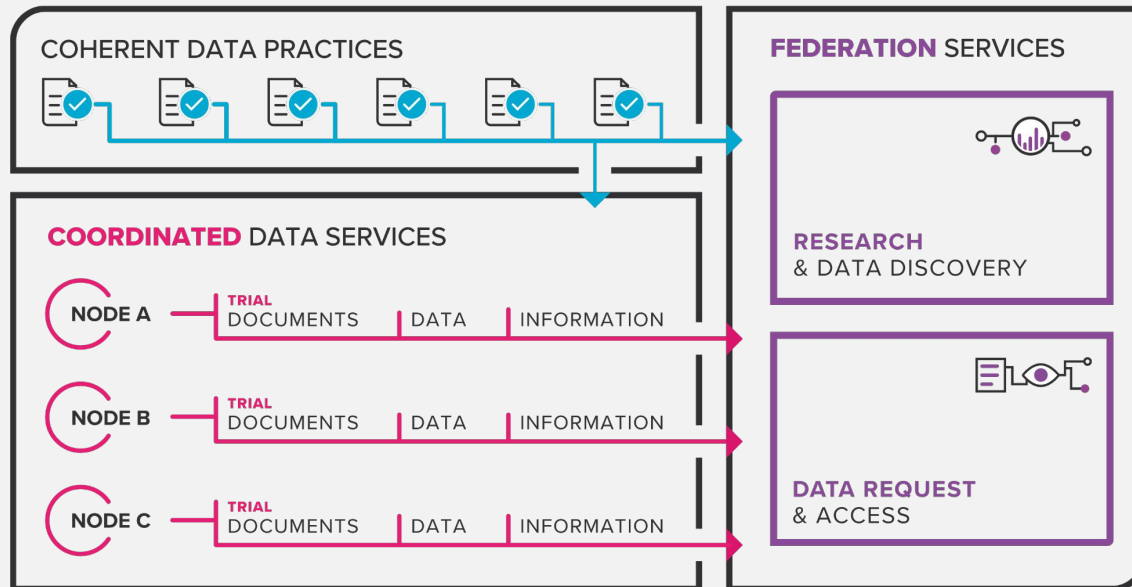
Advanced Analysis

Nationally distributed machine learning of cancer data and imagery across nodes to improve survival and reduce recurrence





HEALTH STUDIES AUSTRALIAN NATIONAL DATA ASSET



HEALTH DATA AUSTRALIA



ABOUT HOW TO ACCESS DATA LOG IN

Find Data for Health Research

Find and share health data for research

All Fields Search for Data Search

Welcome to Health Data Australia

Health Data Australia is a national catalogue of Australian health data for researchers to discover and request access to data for their research.

Health Data Australia launched in July 2023, and we are continuously incorporating new datasets, features, and enhancements, through the People Research Data Commons program, ARDC's national digital infrastructure to support health research.

On Health Data Australia you can:

- search for clinical trial data
- find information about clinical trial data
- request access to data via a request form.

Health Data Australia is a catalogue of information about clinical trials datasets collected across Australia by universities, medical research institutes, clinical trials networks, and health services. You can also find information to better understand these datasets, such as study protocols and data dictionaries.

The data is held and managed by the organisations responsible for the clinical trials. You can use Health Data Australia to submit a data request to the data owner. [Learn how to access the data.](#)

Over the next 5 years, we will expand Health Data Australia to incorporate a wider array of data collections from different health research studies, as well as



ABOUT HOW TO ACCESS DATA LOG IN

Q Search

displaying 1 to 10 of 119

1 2 3 11 12 >

Effect of combined conservative therapies on clinical outcomes in patients with thumb base osteoarthritis (COMBO) dataset

We will share the data of 196 participants including demographics, clinical characteristics, and outcome measures at baseline, weeks 2, 6 and 12.

Effect of combined conservative therapies on clinical outcomes in patients with thumb base osteoarthritis: a randomised, controlled trial (COMBO)
The University of Sydney

Stepped care approach for medial osteoarthritis (STREAMLINE) dataset

The full dataset includes the data of 170 participants including demographics and outcomes at baseline, 20 and 32 weeks.

Stepped Care Approach for Medial Tibiofemoral Osteoarthritis (STREAMLINE)
THE UNIVERSITY OF SYDNEY

Symptom monitoring With Feedback (SWIFT) dataset

This dataset contains the Patient Reported Outcome Measure (PROM) data of 2422 satellite analysis patients clustered across Australia. The PROMs data are the EQ-5D-5L quality of life survey and SCL90-R fatigue survey. In addition it shows more

Symptom monitoring With Feedback Trial (SWIFT)
The University of Sydney

Supporting Adults with Chronic Kidney Disease (SAKID) dataset

4:21 PM 100%

ARDC ABOUT HOW TO ACCESS DATA LOG IN

Q Search

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Partners in Research: Evaluating the value for use and impact of an online tailored parenting program for parents of adolescents

This dataset contains the data of 1000 participants including demographics and outcomes at baseline, 20 and 32 weeks.

Partners in Research: Evaluating the value for use and impact of an online tailored parenting program for parents of adolescents
The University of Sydney

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HEALTH DATA AUSTRALIA

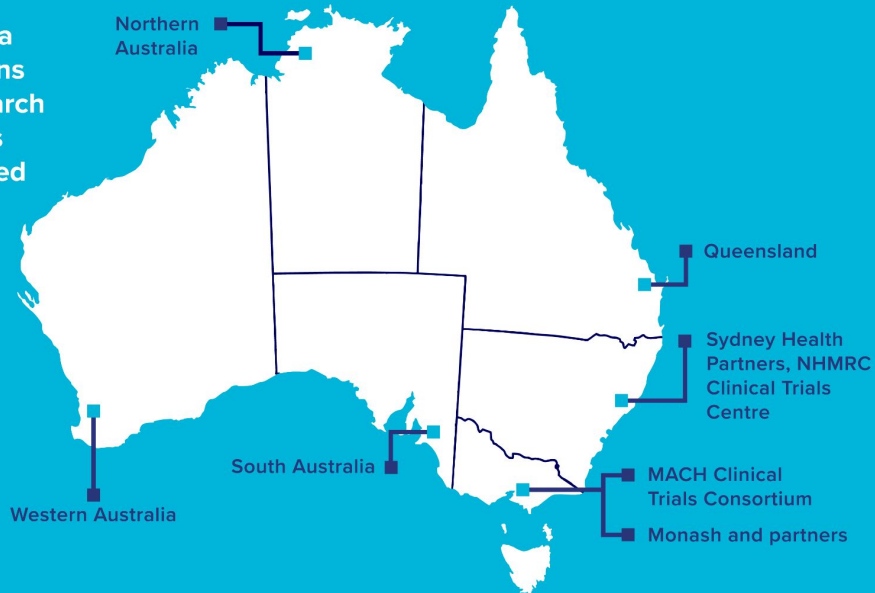


CONTRIBUTORS

Health Data Australia contains contributions from 72 health research organisations across the country, organised into 9 nodes

National Networks

- Mental Health
- Cancer Cooperative Trials Groups

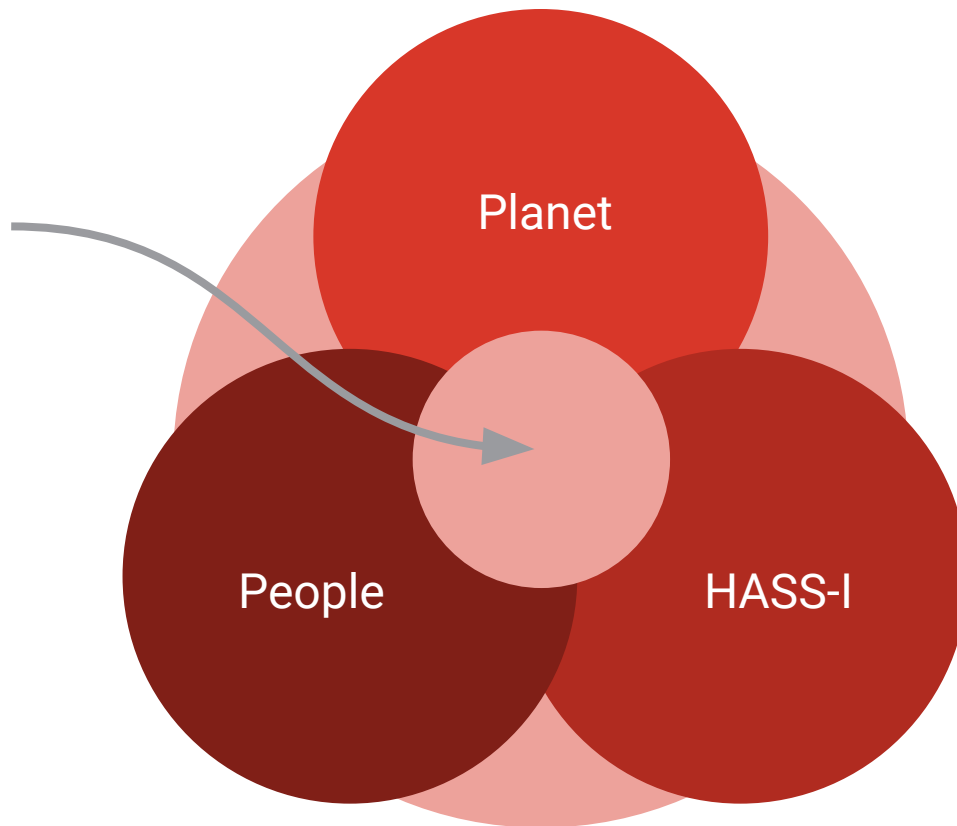


9 nodes comprising:

- 18 universities
- 10 medical research institutes
- 19 health services
- 16 clinical trials networks
- 9 others

214 datasets (as of Oct 2024)

What are the environmental and social determinants of disease?



OPPORTUNITIES FOR US ALL



Complement



Collaborate



Connect



INTERNATIONAL DATA WEEK

13-16 October 2025
Brisbane, Australia



HOSTED BY



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