Australian Government
Australian Institute of Health and Welfare

The forefront of health informatics: Partnering with PHNs for a comprehensive view of Australia's health care

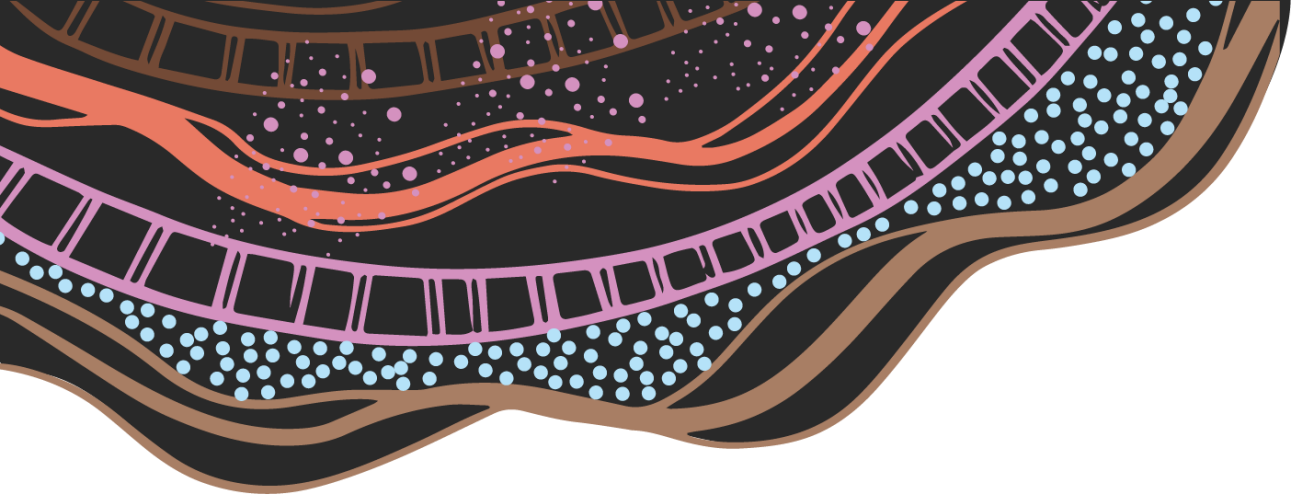
Dr Zoran Bolevich

Chief Executive Officer

Australian Institute of Health and Welfare

AIHW

Stronger evidence,
better decisions,
improved health and welfare



AIHW

The AIHW acknowledges the Traditional Owners of Country throughout Australia and recognises their continuing connection to lands, waters, and communities.

We pay our respect to the people, the cultures, and Elders past and present.

About us

- An independent national information and statistics agency within the health portfolio
- At the forefront of cross-jurisdictional data linkage since the 1980s
- Publishes more than 400 data products a year
- Maintains and administers specialised data standards and classifications
- Deep partnerships with Commonwealth agencies, as well as states and territories
- Collaborates on data projects, provides data and information to support policies and decision making

AIHW

Vision

Stronger evidence, better decisions, improved health and welfare for all Australians

Stakeholder outcomes

- People and organisations have comprehensive and trusted health and welfare data they can engage with
- AIHW data and evidence is used to inform policy and guide service planning and delivery
- Performance measurement, evaluation and improvement is enabled by the AIHW's data and analysis
- High quality research is enabled by integrated, secure and timely data

Organisation goals

- A trusted leader in health and welfare data and analysis
- Innovative producers of data sets and analysis
- A strong strategic partner
- Recognised for our organisational excellence
- Recognised by First Nations people and organisations as an exemplary partner and organisation

Enabler priorities

- Streamlined data governance, integration and sharing
- Effective communication, engagement and collaboration
- Highly skilled workforce
- Contemporary digital platforms and tools
- Optimised business processes and project delivery

Core functions

- Develop, collect and curate health and welfare data
- Create, share and facilitate access to analysis, information and reports
- Conduct, promote and support research on people's health and welfare
- Coordinate and encourage high-quality and comparable data through development of standards and adoption of classifications
- Promote effective use of data and sector-wide development of analytical capabilities

Strategic context

- Multiple and inter-related health and social policy reforms
- Complex decision-making environment
- Complex legal, governance and privacy environment
- More diverse stakeholder needs
- Rapid technological advancements bringing new opportunities and risks
- Dispersed data and information sources
- Fiscal constraints
- Greater focus on monitoring and evaluation
- Increased focus on measuring outcomes
- Increased demand for integrated data

Outcomes supported by AIHW's data and services

- Informing the policy-making cycle
- Guiding and supporting planning and delivery of services
- Monitoring and assessing performance
- Informing workforce planning
- Evaluating outcomes and identifying improvement opportunities
- Informing the public
- Enabling research

Data Standards as a key enabler

National Minimum Data Sets (NMDS) are a core set of data elements agreed by the National Health Information Management Group for mandatory collection and reporting at a national level.

AIHW manages 20 NMDSs (and 100+ other data sets at various levels of standardisation).

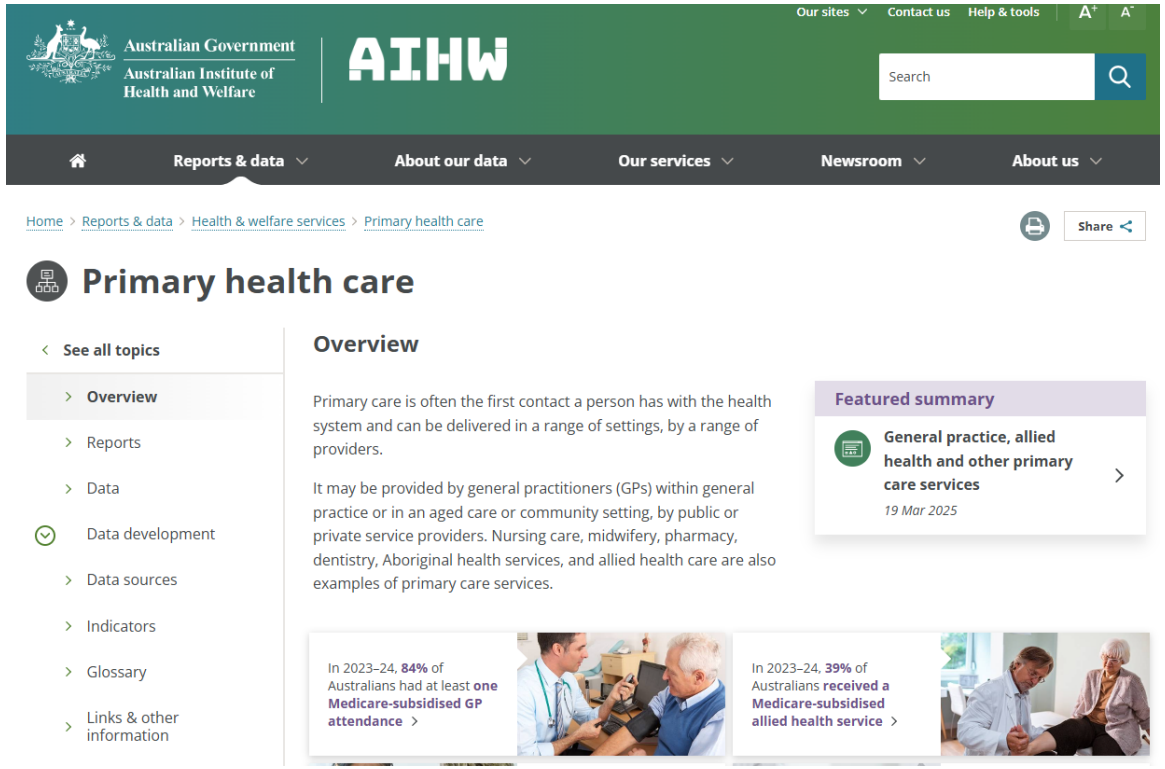
We hold NMDS for:

- admitted patient care
- disability services
- child protection
- residential and community mental health
- youth justice
- specialist homelessness services
- non-admitted emergency care
- alcohol and other drug treatment services

AIHW

AIHW's current Primary Care activities

- **Medicare-subsidised GP, allied health and specialist health care** across local areas, using MBS data
- **Potentially preventable hospitalisations (PPH)** in Australia by small geographic areas, using hospitals data
- **Use of emergency departments for lower urgency care**, using ED data
- **PIPQI reporting:** 10 Quality Improvement Measures (QIMs) across 6,095 practices for over 20 million regular clients
- **Weekly transfer of Urgent Care Clinic data** between the Department and PHNs via the Primary Health Insights platform
- **Secondary use of My Health Record data**, in partnership with the Australian Digital Health Agency [under development]



Trends which are increasing availability and use of data in Health

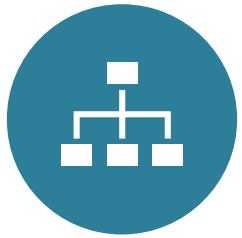
Digital advances

- Digital 'systems of record' more prevalent and more integrated
- Interoperability agenda (including the use of national identifiers)

Advances in data management and analytics

- Data extraction tools / capabilities
- Modern Data Analytics Platforms
- Machine learning and AI / LLM

Maturing of data linkage capabilities



'Five Safes' and other contemporary data governance models

AIHW

Contemporary data and analytics landscape in health

- Convergence of digital health and data analytics
- Greater demand for integrated data insights (data integration)
- The rise of AI

AI Adoption at the AIHW

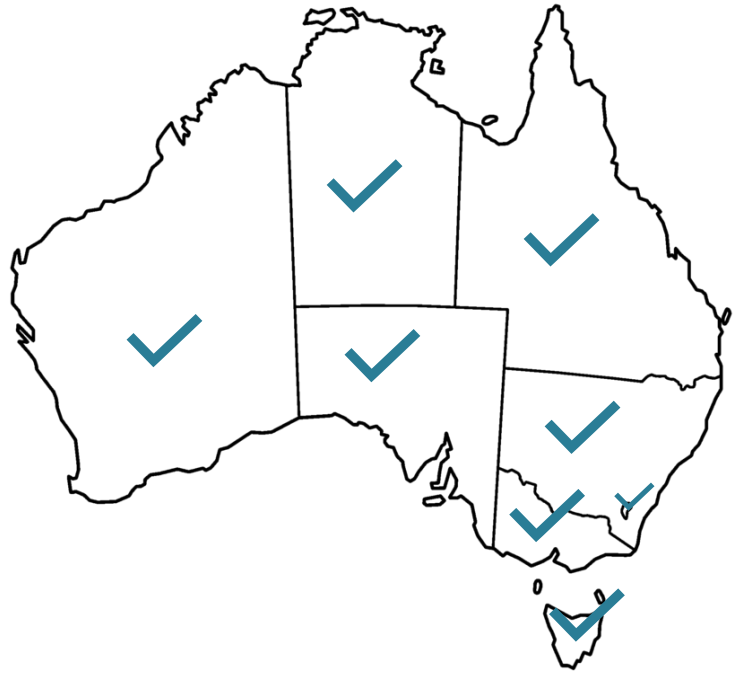
How we are applying it

- Data linkage improvement
- Data quality improvement
- Data clustering
- Data validation
- Data classification & coding
- Information extraction from unstructured data
- Data de-identification
- Data early estimation
- Risk factor & association analysis

AIHW

Integration of health data – the National Health Data Hub (NHDH)

- State/territory notifiable diseases data: COVID-19 cases
- Medicare Consumer Directory (MCD)
- National Notifiable Diseases Surveillance System (NNDSS)
- National Death Index (NDI)
- National Aged Care Data Clearinghouse: aged care data (NACDC)
- Australian and New Zealand Intensive Care Society (ANZICS)
- Medicare Benefits Schedule (MBS)
- Pharmaceutical Benefits Scheme (PBS)
- National Hospital Morbidity Database: admitted patient care data (NHMD)
- Australian Immunisation Register (AIR)
- National Non-Admitted Patient Emergency Department Care Database: emergency department presentations (NNAPEDCD)



Progressing towards the inclusion of:

- Cancer data
- Cancer screening data
- COVID-19 cases from the National Notifiable Disease Surveillance System
- Mental health data
- Perinatal data

AIHW

Examples of NHDH-enabled projects

- The last year of life: patterns in health service use and expenditure
- Medication use for secondary prevention after coronary heart disease hospitalisations: Patient pathways using linked data
- Strengthening national COPD monitoring using linked health services data
- Younger onset dementia: new insights using linked data
- Estimating the incidence of stroke and acute coronary syndrome using the National Integrated Health Services Information Analysis Asset
- Hip fracture care pathways in Australia
- Treatment pathways for people hospitalised for acute coronary syndrome
- Health service use for patients with traumatic brain injury
- Examination of hospital stays due to family and domestic violence 2010–11 to 2018–19
- Predicting early dementia using Medicare claims: a feasibility study using the National Integrated Health Services Information Analysis Asset
- Health service utilisation by people with dementia in Australia

AIHW

Data flows conceptual framework

Supply once

Use many times

Dependent on new approvals for each purpose

Data supplied once, ideally directly from systems of record

AIHW linkage system

AIHW managed integrated data access

Interoperable linkage spines for external integration

Opportunity

Leverage the potential of data integration and ‘big data’ to create patient-centric data ecosystem

Align primary and secondary uses of data to reduce administrative burden and achieve optimal data flows

Use AI to improve data quality, integrity and consistency, and bring new types of data into the ecosystem

Limitations and challenges

'Despite the potential for policies to be based on evidence, in reality an effective connection with many types of research evidence in policy-making remains elusive.'

DATA & TECHNOLOGY

- Data gaps
- Data quality
- Fragmentation
- Double handling
- Timeliness
- (Under) investment in data analytics tools & infrastructure

PEOPLE & PROCESS

- Complex governance and legislative frameworks
- Legitimacy and public trust
- Lack of skill and capacity
- Cognitive biases
- Competing stakeholder interests / priorities
- Ethical and accountable use of data and algorithms

AIHW

Newman, Cherney and Head (2017) in OECD (2020), Building Capacity for Evidence-Informed Policy-Making: Lessons from Country Experiences, OECD Public Governance Reviews, OECD Publishing, Paris, https://doi.org/10.1787/86331250-en.

Building capacity for a data-driven health system

Supporting active use of data and insights for quality decision-making and continuous improvement (and shifting away from current focus on targets)

Professional development programs, communities of practice and other capability building strategies

Adoption of contemporary technologies and interoperability to improve quality, timeliness and integration of data

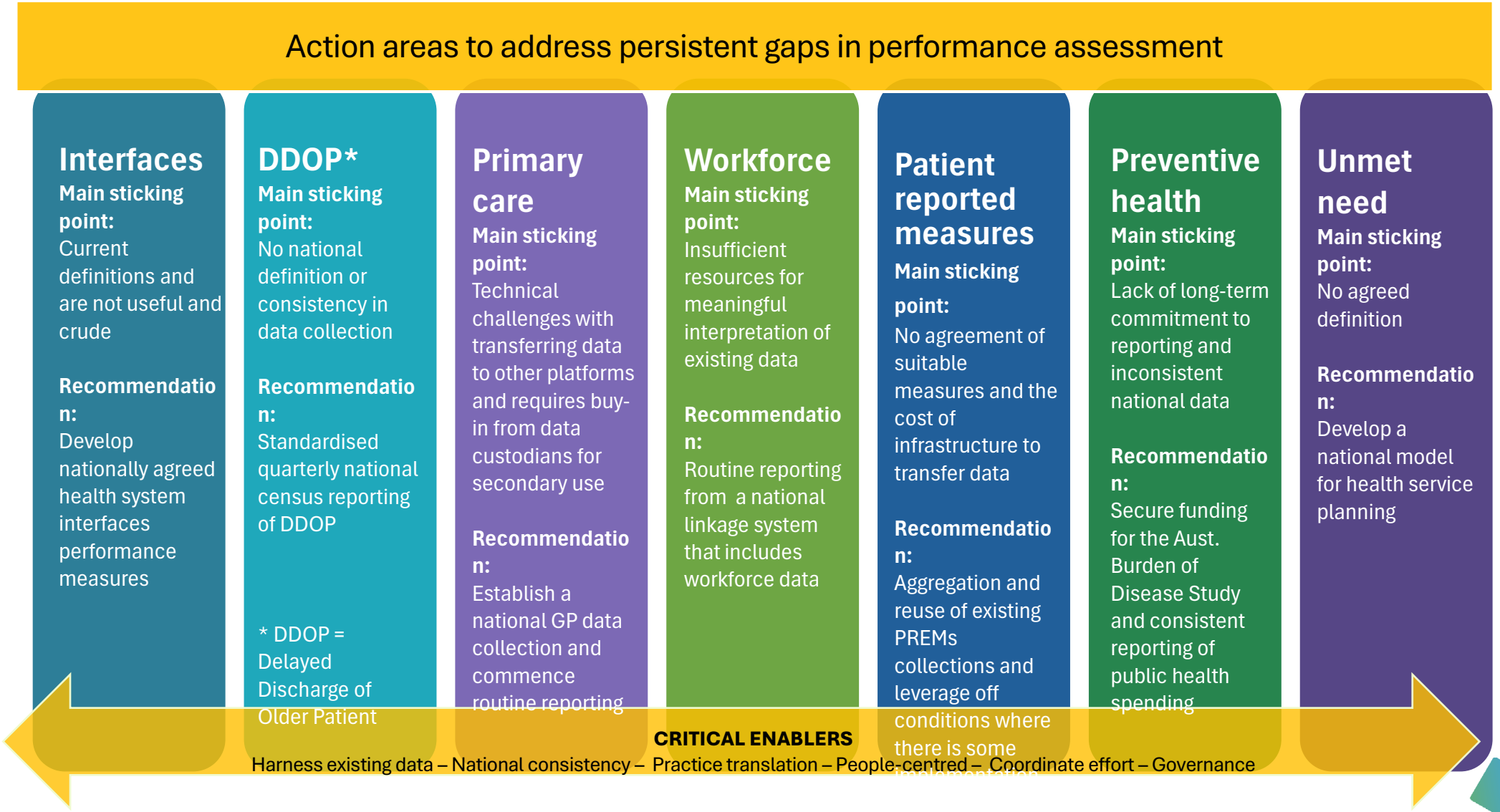
Harmonising legislation and evolving frameworks for governance, access and use of data

Strengthening collaboration and leveraging collective expertise and capabilities of jurisdictions, PHNs and service providers

Strategic investment in data platforms, tools and capabilities

AIHW

The Gaps project (informing a new Health System Performance Assessment framework)



Addressing data gaps:
In partnership with PHNs

Working together to **understand key gaps and opportunities for improvement**. This must build on PHNs' existing capabilities and initiatives.

Undertaking **general practice data demonstration projects.** AIHW taking a learning approach.

Working in partnership with PHNs to develop **pathways to national primary care data collection**.

National Primary & Acute Care Data Linkage Project

Technical co-lead on the **National Primary and Acute Care Data Linkage Project**.

AIHW

General practice data demonstration projects

Project 1: Dementia (COMPLETE)

- Aggregate data: 17 Primary Health Networks
- Towards a national primary health care data collection – dementia demonstration project, About - Australian Institute of Health and Welfare – released Jan 2025

Project 2 (UNDERWAY):

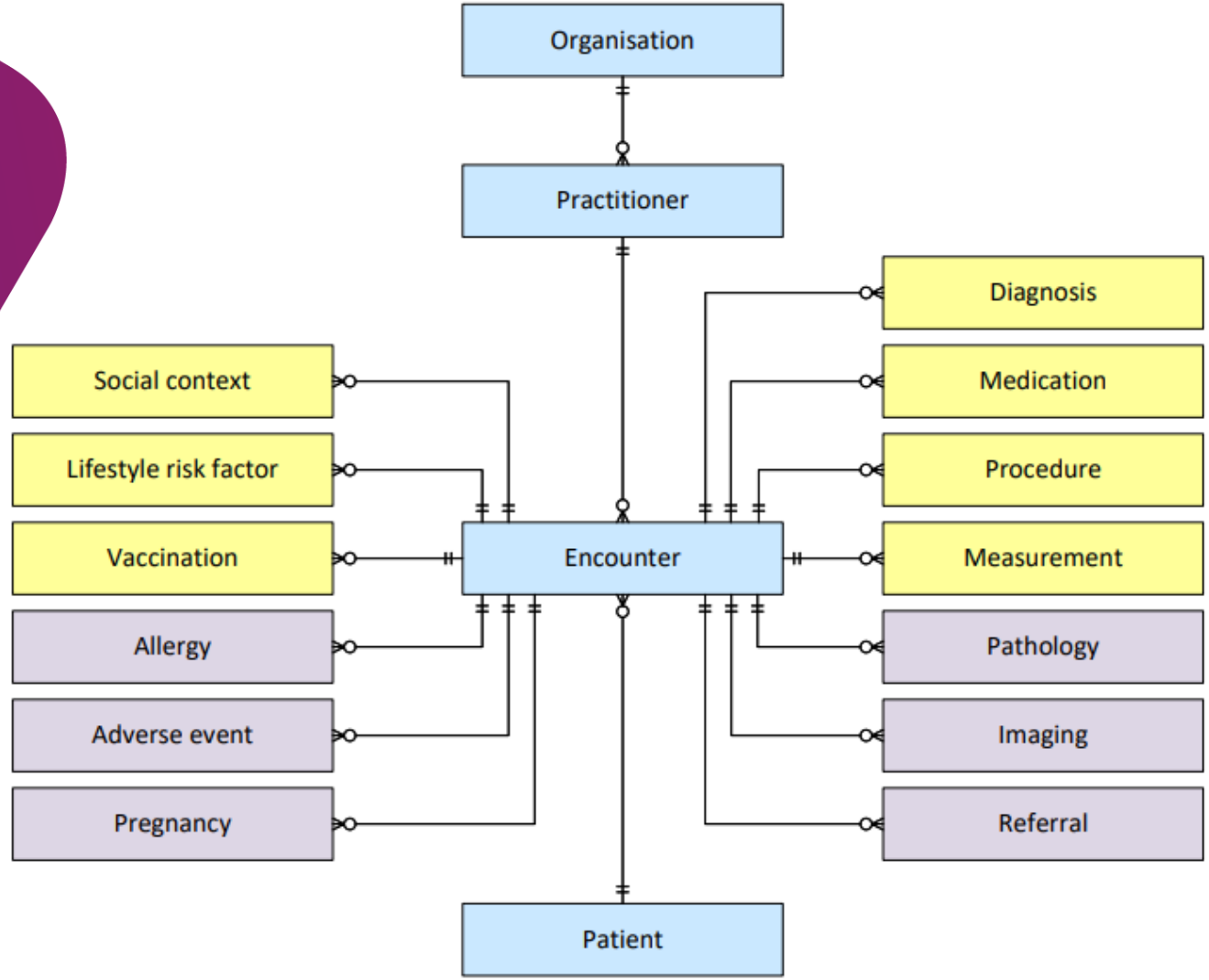
- Proof of concept using deidentified unit record data with Western Australian Primary Health Alliance (WAPHA)
  - Primary care and physical health outcomes of people diagnosed with a mental illness
  - Exploring prevalence of select conditions to inform burden of disease and health expenditure estimates

Other projects (UNDERWAY):

- Testing automated coding of 'reason for visit' data
- Accessing more granular data via curated datamart from PIPQI measures
- Investigating the usefulness of general practice data for closing data gaps in sexual & reproductive health

AIHW

Draft national primary health care data model and dictionary



AIHW

Next steps?

Joint governance with PHNs and the Department of Health Disability and Ageing (discussions underway)

Development of a standard data model and data dictionary (underpinned by terminology and classifications), building on what has already been achieved

Targeted investment in data analytics platforms and tools

Joint capability building (developing data analytics workforce)

Supporting active use of data and insights for quality decision-making

AIHW

Imagine a health care system where...

PHNs have a complete and current picture of primary care services in their regions and how this compares on a national level

GPs and primary care teams receive regular, relevant and meaningful information about the health of their patient cohort, and the quality of services they provide to patients

More recent **policy** initiatives such as Urgent Care Clinics can be evaluated for their effectiveness as a by-product of routine clinical activity

Research teams have secure access to de-identified, linked data sets for advanced research projects

AIHW

Australian Government
Australian Institute of Health and Welfare

AIHW
Stronger evidence, better decisions, improved health and welfare

Thank you


@aihw.gov.au


@aihw


Australian Institute of Health and Welfare (AIHW)


www.aihw.gov.au


ceo@aihw.gov.au
primaryhealthcare@aihw.gov.au