

# Innovation in classification development – Australian non-admitted patient classification project

Patient Classification Systems International (PSCI)

May 2024

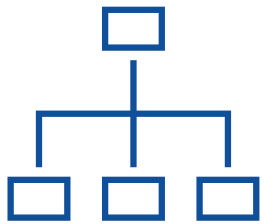
Laura Harris – Director, Classifications

Independent Health and Aged Care Pricing Authority

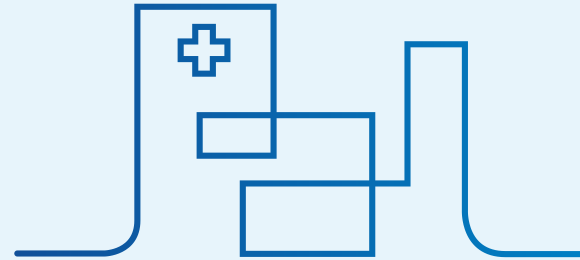
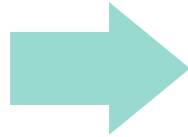
# Independent Health and Aged Care Pricing Authority (IHACPA)

- Independent government agency
- Provides evidence-based price determinations and pricing advice to fund hospital and aged care services more efficiently
- Established under the *National Health Reform Act 2011*
- Delivers annual determination of the national efficient price and national efficient cost to enable activity based funding
- Responsible for developing and refining Australian casemix classifications

# Tier 2 non-admitted services classification

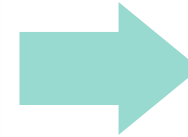


**Tier 2 is clinic based**



Clinics are classified to four groups based on the predominant nature of the service provided:

- Procedures (10 series)
- Medical consultation (20 series)
- Diagnostic services (30 series)
- Allied health and/or clinical nurse specialist intervention services (40 series)

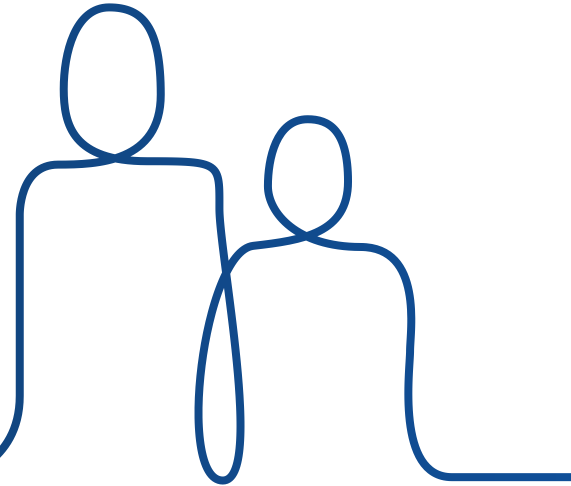


Patient episodes are allocated to classes based on the predominant specialisation:

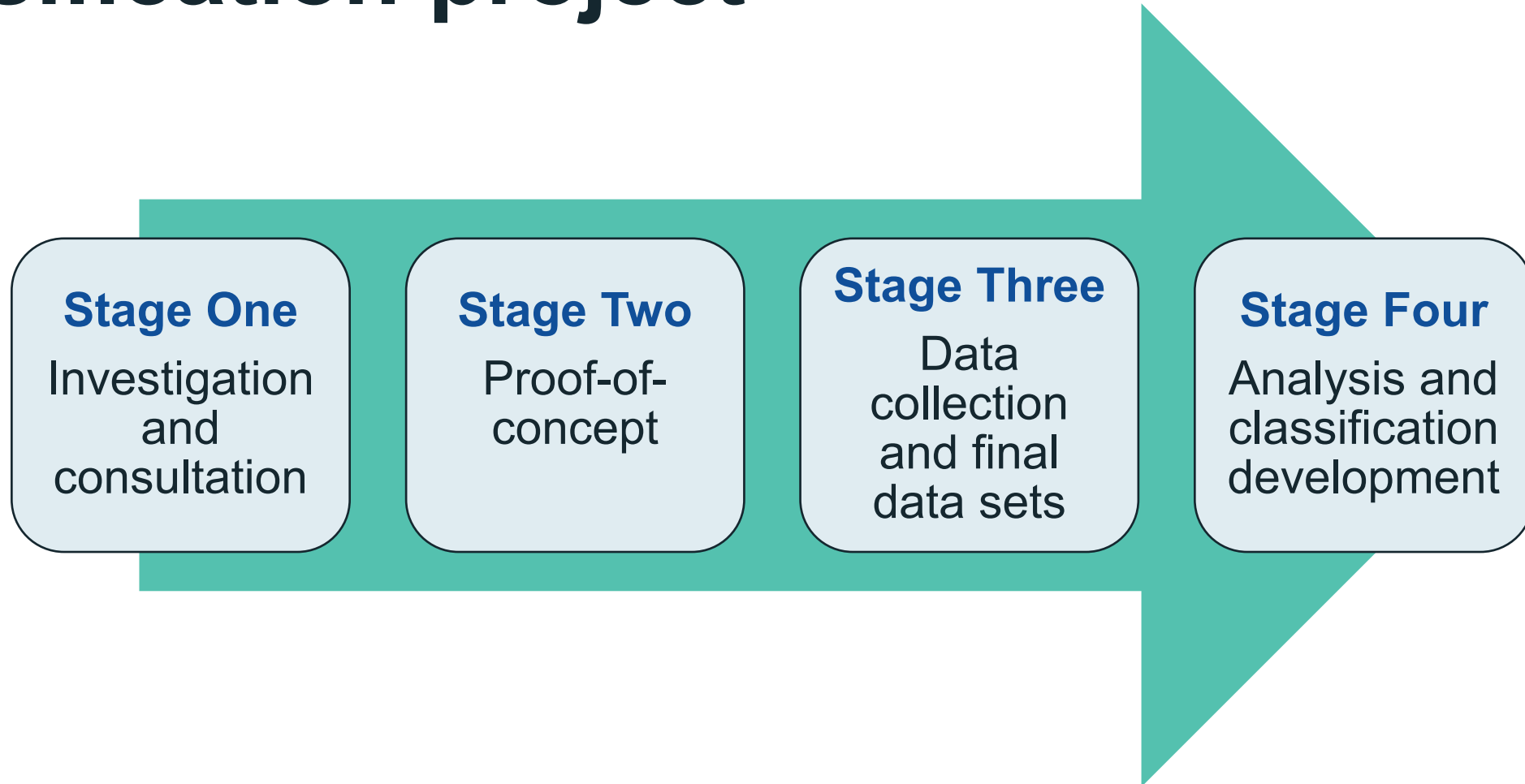
- clinician
- patient condition
- patient population group
- type of care

# Australian non-admitted patient classification project

Aims to develop a new classification for non-admitted patient care that better describes patient characteristics and care complexity and more accurately reflects the costs of delivering non-admitted patient services through utilising data procured from jurisdictional electronic medical record (eMR) systems.



# Australian non-admitted patient classification project



# Stage 1

Investigation and consultation

# Stage 1 – investigation and consultation

**Better understand jurisdictions eMR and other electronic systems and the feasibility of utilising information from these systems to inform classification development.**

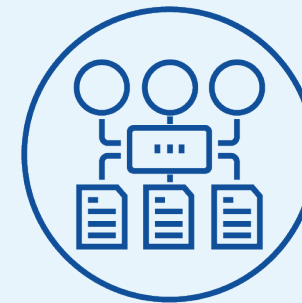
**Desktop  
review**



**Jurisdictional  
consultations**



**Security  
and privacy**



# Desktop review

The desktop review identified 'must have' data elements:



**Time – actual  
duration of  
episode**



**Clinicians  
involved in  
service delivery**



**Presenting  
problem**



**Treatment and  
procedures**



**Medical and  
social history**



# Consultation sessions

## Key lines of enquiry:



**Electronic systems used**



**'Must have' cost drivers and data elements**



**Other cost drivers and data elements**



**Emerging models of care**



**Privacy, ethics and data security**

# Key findings

- Desire for a new non-admitted classification
- Metropolitan and regional hospitals are currently using eMR systems
- Use of a number of electronic systems other than eMR systems
- Significant amount of data for key cost drivers stored in free text
- Use of composite timestamp data required to derive duration
- Several jurisdictions exploring the use of artificial intelligence and natural language processing (NLP)
- Proposed approach is feasible but requires further exploration
- Challenges noted were privacy, data security, ethics and resourcing

# Recommendations

1. Four jurisdictions have the required eMR systems and data elements to participate in Stage 2.
2. Privacy, data security and ethical considerations be prioritised to ensure the security and reliability of data.
3. Further investigation into NLP tools.



# Stage 2

Proof-of-concept

# Stage 2 – Proof-of-concept

**Development of a model to extract data from jurisdictional eMR systems and transform unstructured data into a format using NLP techniques to create a dataset for completing a costing study for classification development.**

Stage 2 involves working with Queensland and Victorian health departments and the 5 sites identified to:

- develop site implementation plan and data request specifications.
- whitelist and install the data pipeline
- complete data extraction.

# Stage 2 – testing methodology

- Assessed accuracy of capturing 3 priority cost driver elements found in unstructured data:
  - presenting problem/s
  - treatments and procedures
  - medical and social history
- To codify free text to clinical code sets of ICD-10-AM and the Australian Classification of Health Interventions
- By using set of 100 Australian de-identified outpatient clinical notes
- Compared results to codes assigned by qualified human coders

# Stage 2 – activities

- Development of documentation for site implementation, data pipeline for whitelisting, data extracting and processing and data request specifications.
- Independent cyber security review on system architecture and detailed data process flows.
- Independent privacy impact assessment to ensure compliance with Australian privacy legislation and principles.
- Quality Improvement application process with local Humans Research Ethics Committee.

# Next steps



# Next steps

**If the methodological model is successful in deriving priority cost driver data elements and can be linked to cost data to form an activity and cost data set the ANAPP will progress to Stage 3.**

- Stage 3 – Data collection and final data sets



Undertake a rigorous statistical analysis of activity and cost data

- Stage 4 – Analysis and classification development



Develop a new non-admitted patient classification system

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