Clinical Design Group

Tuesday 29 July 2025

Sydney

THE SPARKED COMMUNITY

Acknowledgement of Country

We acknowledge the Traditional Custodians of the land

on which we all gather today.

We pay our respect to elders past, present, and emerging and extend our respect to all Aboriginal and Torres Strait Islander people, acknowledging the First Peoples as the first scientists, educators and healers.

'Eternal Wisdom, Infinite Innovation'
artwork by Rachael Sarra, working with Gilimbaa.

Sparked HL7 FHIR

Photos/Video

Please be advised that photographs and video will be taken at the event for use on our website and in other written and online publications.

By entering this event, you consent to the photography and video and using your image and likeness.

If you do not wish to be photographed or videoed, please inform the Sparked team.

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Agenda

Time	Topic	Facilitator / Speaker
8.30am	Registration	
9:00am	Welcome and introductions	Kate Ebrill
9.05am	Objectives	Kate Ebrill
Topic: Scene setting		
9.10am	Department of Health, Disability and Ageing (DHDA)	Jeremy Sullivan
9.25am	Recap of Sparked Priorities	Kate Ebrill/Kylynn Loi
9.35am	Health assessments – DHDA Aged Care Priorities	Emma Cooke
	Health assessments – Primary care in Aged Care	Steven Kaye
	Health assessments – Paediatrics	Kim Drever
	Health assessments – Allied Health	Jackie O'Connor
	Health assessments – Nursing	Janette Gogler
	Health assessments –Mental health	Paul Mayne
10.30am	Morning Tea	
Topic: Health assessments		
11.00am	Mapping Assessments and Measures in Aged Care research project	Katie Packer
11.15am	The art of what's possible for assessment tools with FHIR	Mark Braunstein
11.30am	Workshop 1 - Introduction	Kate Ebrill/Kylynn Loi
11.45am	Workshop- Exploring use cases of health assessment data	Kate Ebrill/Kylynn Loi
12.30pm	Report back	Kate Ebrill/Kylynn Loi
1.00pm	Lunch	

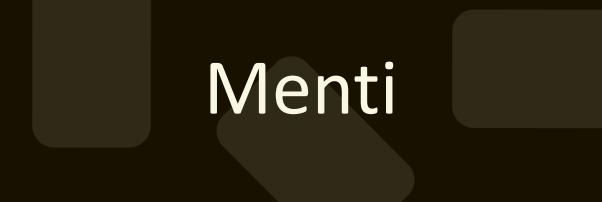| Time	Topic	Facilitator / Speaker
Topic: Health assessments		
1.45pm	Workshop 2 - Introduction	Kate Ebrill/Kylynn Loi
1.50pm	Workshop 2 – Prioritisation/first steps	Kate Ebrill/Kylynn Loi
2.30pm	Report back	Kate Ebrill/Kylynn Loi
3.00pm	Afternoon Tea	
Topic: AUCDI Backlog Prioritisation		
3.30pm	Backlog overview	Kate Ebrill/Kylynn Loi
3.45pm	Community pitches & backlog prioritisation (3-minute pitches, plus discussion & voting)	Kate Ebrill/Kylynn Loi
	Pitch: Device	Cath Koetz
	Pitch: Procedure Group update	Mel Wassell
	Pitch: TBC	Kath Feely
	Pitch: Vaping Summary	Michael Frost
	Pitch: Adverse risk summary update	Jillian Kehoe & Prof. Michaela Lucas
	Pitch: Heart rhythm	Liam Barnes
	Pitch: Head circumference	Liam Barnes
	Pitch: Blood pressure update	Liam Barnes
4.45pm	Wrap up and introduction to Day 2	Kate Ebrill
5.00pm	Day 1 conclude	

Objectives

Understand and recap the priorities for Sparked and AUCDI

Understand and agree approach for Health Assessment data in AUCDI R3
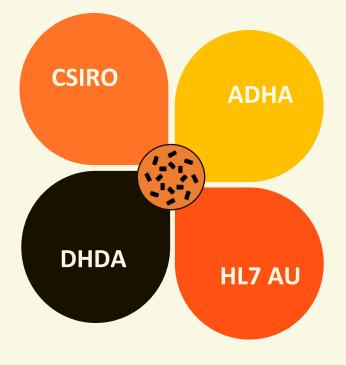
Scope development & backlog prioritisation for AUCDI R3

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HL7 FHIR

Menti

Scene Setting

Department of Health, Disability and Ageing
Jeremy Sullivan

Sparked priorities recap

Kate Ebrill and Kylynn Loi

COMMUNITY
comprising **government, technology partners, provider organisations, peak bodies, practitioners, and domain experts**

ACCELERATING
the creation and use of national FHIR standards in health care information exchange

Sparked is supported through a partnership

CSIRO

ADHA

DHDA

HL7 AU

THE SPARKED COMMUNITY

Standards are only as strong as its community

Over 100 Founding Members

Peak Bodies and Colleges

These organisations endorse Sparked's goals and are committed to participating in design groups and HL7 AU Connectathons.
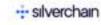
Since our inception, the Sparked community has grown to

1,100+

Sparked HL7 FHIR
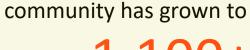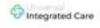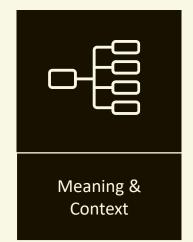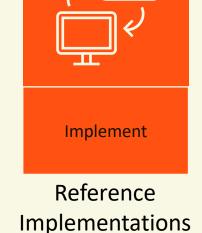
Sparked Accelerator Scope

Meaning & Context	Language & Terms	Sharing & Exchange	Testing	Implement

Data for Interoperability (e.g. AU CDI)

- AUCDI R1 – published
- AUeReqDI – published
- AUCDI R2 – published
  - Patient Summary
  - Chronic Condition Management
  - Encounter Record
- AUCDI R3 – scoping now

Clinical Terminology Value Sets

- SNOMED CT and LOINC Value sets RANZCR
- RCPA

FHIR Implementation Guides

- AU Core
  Ballot for working standard
- AU eRequesting
  Ballot
- AU Patient Summary
  In ballot

Testing & Piloting of FHIR Standards

- Testing of FHIR Standards, supported by infrastructure & tooling

Reference Implementations & Testing Service

- Services that support implementation and testing of FHIR based applications

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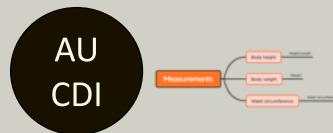
What is AU Core and Australian Clinical Data set for Interoperability (AUCDI)?

AU CDI

Specifies *"WHAT"* **clinical information** (and corresponding data elements and terms) should be included for data entry, data use and sharing information supporting patient care

Clinical is here

AU Core

Specifies *"HOW"* the core set of data (above) an information should be **structured, accessed** and **shared** between systems

Technical is here

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HL7 FHIR

Igniting national interoperability — **Sparked** has fuelled two years of FHIR-powered progress across Australia's digital health landscape...

Sparked Clinical Design Group
81 *Sept 23* → **876** *May 25*
Meets Monthly
Members
~80 regular attendees

Engagement Events:
Online: 10
Face-to-face: 7

Sparked Harmonisation Group
34
CDG Co-Chairs, TDG Co-Leads & partner representatives
Meets Monthly

Engagement Events:
Online: 1

Sparked AU Core Technical Design Group
91 *Sept 23* → **735** *May 25*
Meets Monthly
Members
~60 regular attendees

Engagement Events:
Online: 38
Face-to-face: 7

Sparked Patient Summary Project Team
236
Meets Monthly
Members
~55 regular attendees

Engagement Events:
Online: 7

Sparked AU eRequesting Technical Design Group
151 *Oct 23* → **617** *May 25*
Meets Monthly
Members
~60 regular attendees

Engagement Events:
Online: 41
Face-to-face: 4

1,100+
Registered community members

20,600+
Community expert hours
Aug 2023 – April 2025

2,400+
LinkedIn community members

Sparked Chronic Condition Mgmt Clinical Focus Group
38
Meets Monthly
Members

Sparked AU Patient Summary Clinical Focus Group
41
Members

Virtual Events & Webinars
136
Aug 2023 – April 2025

In-person Leadership & Workshop Events
23
Aug 2023 – April 2025

Sparked Symposium
500+   **>40%**
Registered attendees   *Of attendees are new to Sparked*

Sparked HL7 FHIR
Delivering Open, Transparent, and Community-Consensus Healthcare Interoperability with FHIR
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FY24/25 Product Update

AUCDI
Release 1: June 2024 ✓
Release 2: June 2025 ✓

AU Core FHIR IG
Release 1: February 2025 ✓
Release 2: January 2026

AU Patient Summary FHIR IG
Release 1: June 2026

AU eRequesting FHIR IG
Release 1: January 2026

AUeReqDI
Release 1: October 2024 ✓

Sparked Testing Tools
AU Core R1 & R2 FHIR IG Inferno Test Kits ✓
AU Core R1 FHIR IG Sample FHIR Test Data ✓

AU eRequesting R1 FHIR IG Sample FHIR Test Data
AU Patient Summary R1 FHIR IG Inferno Test Kit ✓
AU Patient Summary R1 Sample FHIR Test Data

Radiology Referral ValueSet/s
Release 1: June 2025

Pathology Request ValueSet/s
Release 1: June 2025

FY24/25 Program Update

Sparked has achieved all of its aspirations and targets for the first two years of delivery as well as the addition of AU Patient Summary FHIR IG.

✓ Trialled the FHIR Management Community Process
✓ Sparked Operating Model
✓ Established Product Backlogs
    AUCDI
    AU Core FHIR IG
    AU eRequesting FHIR IG
    AU Patient summary FHIR IG

✓ Established FHIR Infrastructure & Open Source Tools

✓ Conducted CSIRO Program Evaluation

✓ Established a Community of Clinicians, Software Developers, Healthcare Organisations, Government and Consumers

The Sparked Symposium: Sparking the FHIR (May 2025)

The Sparked Symposium, a one-day virtual leadership event, provided the digital health community an opportunity to hear from digital health and standards leaders from Australia and across the globe. The event also celebrated the incredible contributions of the Sparked community and what has been achieved since the Sparked launch. This virtual event was designed not just for the Sparked community, but the Australian and international digital health community to see the progress the accelerator made. The progress of the Sparked community was further demonstrated by a vendor showcase to show AU Core, AU Patient Summary, and AU eRequesting interoperability standards in action.

Session Recordings

Check out the **Sparked Youtube channel** for this and more!

Session 1: FHIR-ing around the globe

Hear from digital health leaders from Australia and around the world on the state of digital health, interoperabil...

Speakers

- Daniel McCabe – Department of Health, Disability and Ageing
- Steven Posnack – United States of America Department of Health and Human Services
- Abhi Kalra – Canda Health Infoway
- Daniel Vreeman – HL7 International

Session 2: Australia on FHIR

During the first half of this session, we welcome representatives from the Sparked partners – Department of Health and Aged Care, Australian Digital Health Agency, CSIRO, and HL7 Australia. In the second half of the session, we will hear from the Sparked Jurisdiction community about how they are working with digital health standards and the Sparked program.

Session 2a: Sparked Partners

- Simon Cleverley – Department of Health, Disability and Ageing
- Peter O'Halloran – Australian Digital Health Agency
- David Rowlands – HL7 Australia
- Brett Sutton – CSIRO

Session 2b: Sparked Jurisdiction Community

- Marc Belej – SA Health
- Kendall Hockey – eHealth NSW
- John Lambert – Department of Health, Tasmania
- Jeff Ewen & Frank Patterson – Department of Health, Western Australia
- Raelene Donovan – Queensland Health

Session 3: FHIR-ed up Community Showcase

Hear from the clinical, consumer, and industry community on how working toward national digital health standards is changing how they work and how it benefits consumer care. The session will include a vendor showcase, where you will hear how industry is participating in the Sparked program and how they are implementing AU Core, AU eRequesting, and AU Patient Summary.

- Dr Chris Moy – GP and Australian Digital Health Agency Digital Health Advisor
- Harry Iles-Mann – Health consumer advocate
- Dr Kim Drever – Paediatrician
- Jess White & Dr Fabrina Hossain – Best Practice Software
- Philip Loya – Oracle
- Monica Trujillo – Telstra Health
- Michael Strachan – Magentus, with Sonic Healthcare, Healius, and Australian Clinical Labs
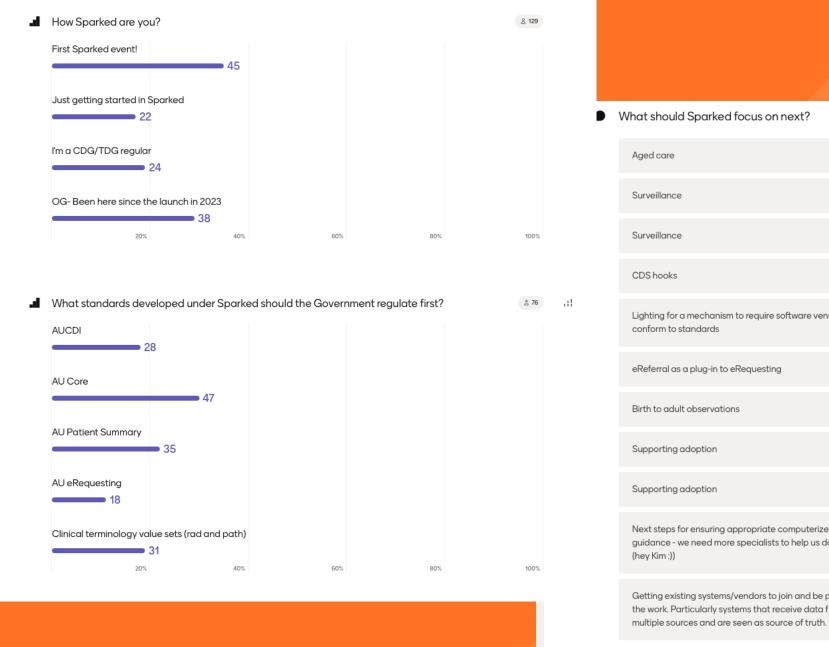- Andrew Aho – Intersystems

Session 4: Standards here, standards there, standards everywhere

In the final session of the day, we hear from international digital health standards leaders.

- Grahame Grieve – HL7 International
- Rachel Dunscombe – openEHR
- Charles Gutteridge – SNOMED International
- Herko Coomans – Global Digital Health Partnership

How Sparked are you? 👤 129

First Sparked event!
45

Just getting started in Sparked
22

I'm a CDG/TDG regular
24

OG- Been here since the launch in 2023
38

20%   40%   60%   80%   100%

What standards developed under Sparked should the Government regulate first? 👤 76

AUCDI
28

AU Core
47

AU Patient Summary
35

AU eRequesting
18

Clinical terminology value sets (rad and path)
31

20%   40%   60%   80%   100%

What should Sparked focus on next? 👤 18 💬 22

Aged care	Bulk FHIR and smart apps
Surveillance	Chronic Disease Management
Surveillance	Pharmacy and eprescribing
CDS hooks	social determinants and getting data ready for AI
Lighting for a mechanism to require software vendors to conform to standards	Functioning, eg ADLs
eReferral as a plug-in to eRequesting	Working on adoption with government agencies
Birth to adult observations	Population health metrics
Supporting adoption	Early childhood
Supporting adoption	More Primary Care providers (not PHNs or other ' pea k bodies ' Coalface ' workers champions in all of our disparate deciplines)
Next steps for ensuring appropriate computerized clinical guidance - we need more specialists to help us do this (hey Kim :))	Building on erequesting as a repeatable pattern for all orders/requests. Ereferral, eprescribing, etc
Getting existing systems/vendors to join and be part of the work. Particularly systems that receive data from multiple sources and are seen as source of truth.	community showcase

Show less

Celebrating the Community
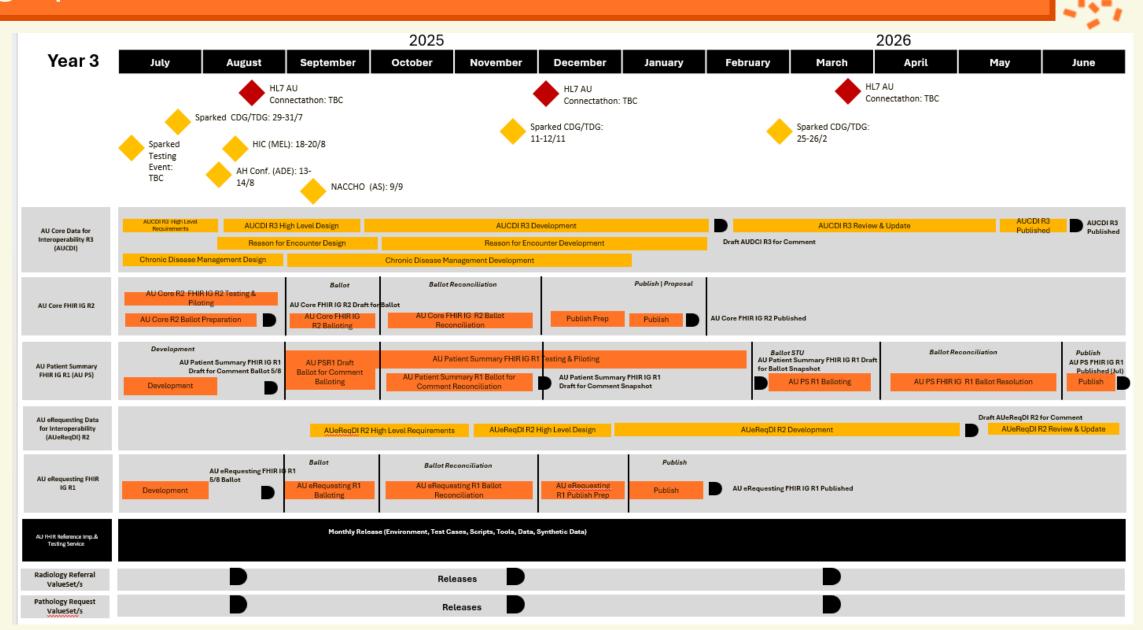
Sparked Podcast

We created the Sparked Podcast - bringing together the biggest names in the industry to discuss the challenges, breakthroughs, and future of digital health.

Hosted by Brett Sutton AO, Season 1 features digital health leaders, including: Elizabeth Koff, Grahame Grieve, Daniel McCabe, Danielle Bancroft, Peter O'Halloran, and Rob Hosking
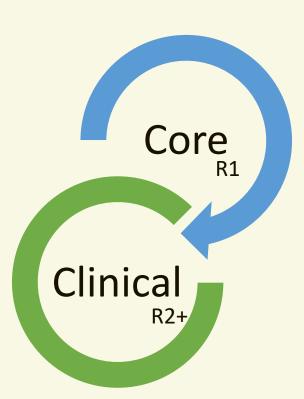
Season 2 launching soon!

Sparked

Turning Up the *Heat* in FY25/26!

Roadmap timeline for Year 3 (2025–2026)

Year 3	July	August	September	October	November	December	January	February	March	April	May	June

Milestones:
- HL7 AU Connectathon: TBC (August)
- Sparked CDG/TDG: 29-31/7
- Sparked Testing Event: TBC
- HIC (MEL): 18-20/8
- AH Conf. (ADE): 13-14/8
- NACCHO (AS): 9/9
- HL7 AU Connectathon: TBC (December)
- Sparked CDG/TDG: 11-12/11
- HL7 AU Connectathon: TBC (March)
- Sparked CDG/TDG: 25-26/2

AU Core Data for Interoperability R3 (AUCDI)
- AUCDI R3 High Level Requirements
- AUCDI R3 High Level Design
- AUCDI R3 Development
- Draft AUDCI R3 for Comment
- AUCDI R3 Review & Update
- AUCDI R3 Published
- AUCDI R3 Published
- Reason for Encounter Design
- Reason for Encounter Development
- Chronic Disease Management Design
- Chronic Disease Management Development

AU Core FHIR IG R2
- AU Core R2 FHIR IG R2 Testing & Piloting
- AU Core R2 Ballot Preparation
- AU Core FHIR IG R2 Draft for Ballot
- AU Core FHIR IG R2 Balloting
- Ballot
- AU Core FHIR IG R2 Ballot Reconciliation
- Ballot Reconciliation
- Publish | Proposal
- Publish Prep
- Publish
- AU Core FHIR IG R2 Published

AU Patient Summary FHIR IG R1 (AU PS)
- Development
- AU Patient Summary FHIR IG R1 Draft for Comment Ballot 5/8
- Development
- AU PSR1 Draft Ballot for Comment Balloting
- AU Patient Summary R1 Ballot for Comment Reconciliation
- AU Patient Summary FHIR IG R1 Testing & Piloting
- AU Patient Summary FHIR IG R1 Draft for Comment Snapshot
- Ballot STU AU Patient Summary FHIR IG R1 Draft for Ballot Snapshot
- AU PS R1 Balloting
- Ballot Reconciliation
- AU PS FHIR IG R1 Ballot Resolution
- Publish AU PS FHIR IG R1 Published (Jul)
- Publish

AU eRequesting Data for Interoperability (AUeReqDI) R2
- AUeReqDI R2 High Level Requirements
- AUeReqDI R2 High Level Design
- AUeReqDI R2 Development
- Draft AUeReqDI R2 for Comment
- AUeReqDI R2 Review & Update

AU eRequesting FHIR IG R1
- Development
- AU eRequesting FHIR IG R1 5/8 Ballot
- AU eRequesting R1 Balloting
- Ballot
- AU eRequesting R1 Ballot Reconciliation
- Ballot Reconciliation
- AU eRequesting R1 Publish Prep
- Publish
- Publish
- AU eRequesting FHIR IG R1 Published

AU FHIR Reference Imp.& Testing Service
- Monthly Release (Environment, Test Cases, Scripts, Tools, Data, Synthetic Data)

Radiology Referral ValueSet/s
- Releases

Pathology Request ValueSet/s
- Releases

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AUCDI Update

Australian Clinical Data for Interoperability (AUCDI)

Core R1

Clinical R2+
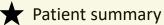
Maturing from
Australian **Core** Data for Interoperability
to
Australian **Clinical** Data for Interoperability

Across the health ecosystem (all domains, private and public, from primary to population health)

Across the health continuum (preventative, acute and chronic care)

Across a person's life course

AUCDI

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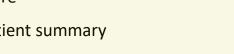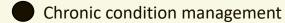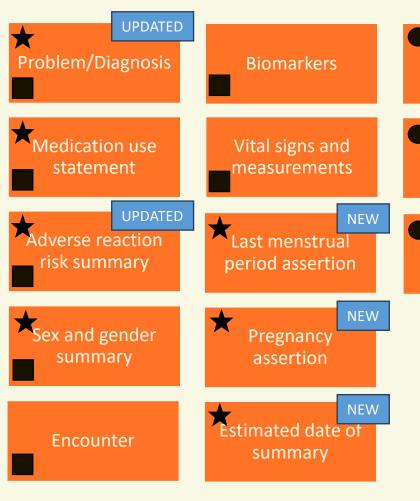
AUCDI R3

Release 1

"Core of the core"

Concepts for a health summary (guided by clinical content of IPS)

Release 2

Patient summary

Chronic Condition Management

Encounter information (including reason for encounter)*

Release 3

- Chronic Condition Management
  - Assessments, scales and scores
  - ...
- Encounter record
- Priority backlog items

Release 4

AUCDI – iteratively growing

*CDG scoping and requirement gathering for future releases

Sparked 🔥HL7 FHIR
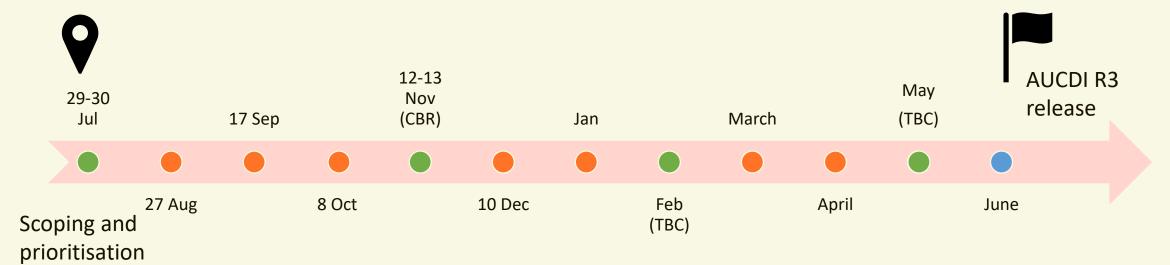
AUCDI R3 Schedule

We are here

29-30 Jul

17 Sep

12-13 Nov (CBR)

Jan

March

May (TBC)

AUCDI R3 release

Scoping and prioritisation of AUCDI R3

27 Aug

8 Oct

10 Dec

Feb (TBC)

April

June
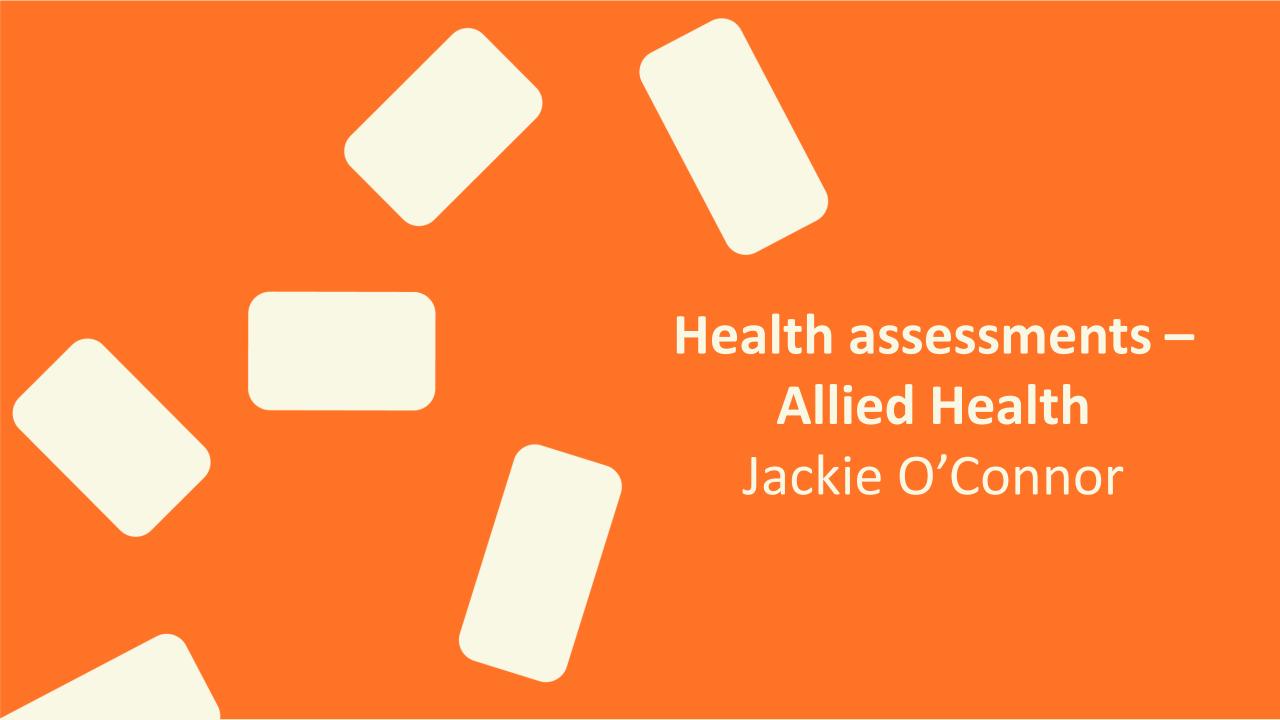
- 🟢 In person meeting
- 🟠 Online meeting
- 🔵 Publication

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HL7 FHIR

Health assessments – Allied Health

Jackie O'Connor

Allied Health & Health Assessments

Jackie O'Connor: AHPA Digital Health Program Manager

Health Assessment Priority Info

Data Group	Why?
Diagnostic test results	• Inform care but can't collect, request or refer independently
Care team members & goals	• Faster & easier to access information not already shared • Formal care plans only include funded representatives • Collaborative treatment toward goal achievement
PROMs / PREMs (Valid & reliable outcome measures)	• Optimal value-based care funding decisions & models • Assists consumer decision making • Organisation bench-marking = drive service improvements • Clinical decision support = best practice • Understand risks & benefits of medical devices • Audience trust & understanding of care provision

Current use of PROMs & PREMs

- Inform and evaluate care

- Wide range of tools used as must be tailored to consumer scenario

- High useage

  - 3rd party funders

  - Stat or National tools:

    - Fitness to drive assessments

    - EQ-5D-5L – commissioning of MD teams

PROMs & PREMs inclusion in AUCDI

- What's already been done to help implementation?

  - AH associations educate re need and provide resources

  - Solutions to extract aggregated data for research and policy

    purposes

  - International Consortium for Health Outcomes

    Measurement (ICHOM)

- Its own data group or within others?

AHPA Ordinary Members

Health assessments – Mental Health
Paul Mayne

Health assessments – DHDA Aged Care Priorities
Emma Cooke

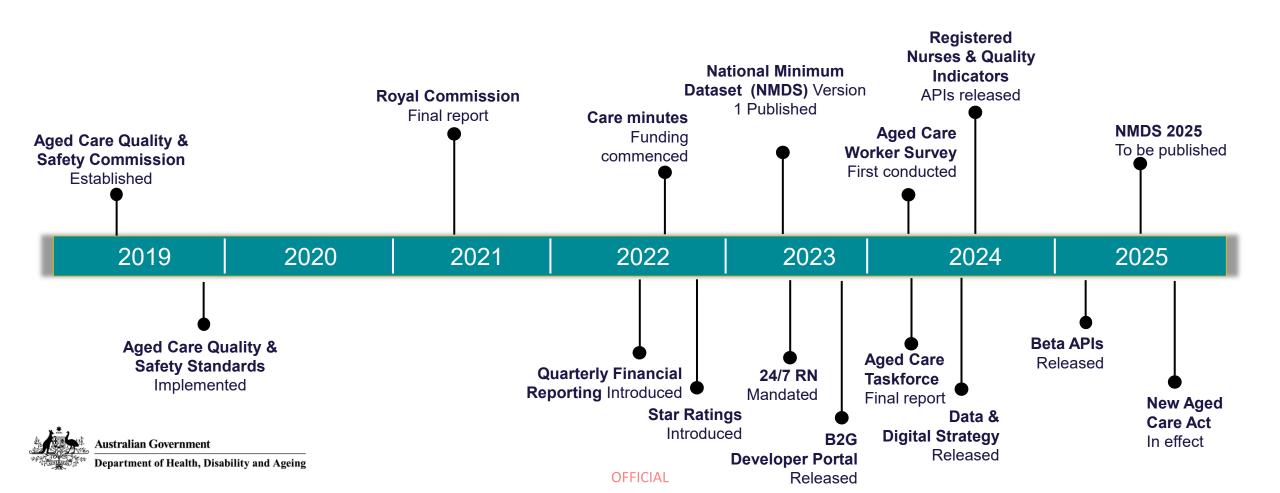# Sparked Clinical Design Group

Emma Cook, Assistant Secretary Digital Reform Branch

Reform Implementation Division | Ageing & Aged Care Group

Department of Health, Disability & Ageing
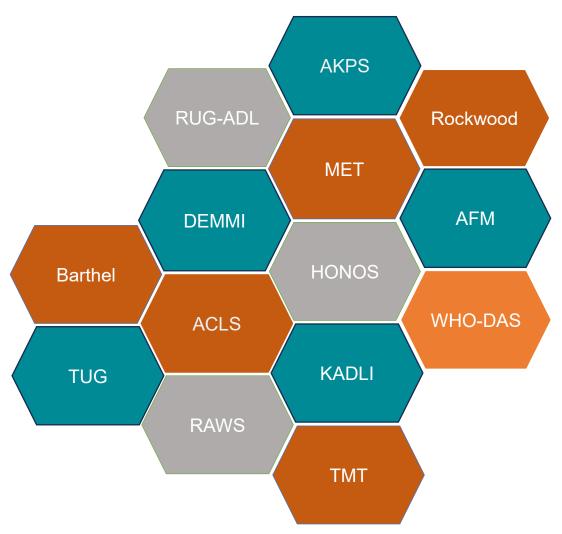
Reform context

The Department has undergone period of rapid reform, informed by recommendations of Royal Commission into Aged Care Quality & Safety, and of Aged Care Taskforce.

Aged Care Quality & Safety Commission
Established

Royal Commission
Final report

Care minutes
Funding commenced

National Minimum Dataset (NMDS) Version 1 Published

Registered Nurses & Quality Indicators
APIs released

Aged Care Worker Survey
First conducted

NMDS 2025
To be published

2019   2020   2021   2022   2023   2024   2025

Aged Care Quality & Safety Standards
Implemented

Quarterly Financial Reporting Introduced

Star Ratings
Introduced

24/7 RN
Mandated

B2G Developer Portal
Released

Aged Care Taskforce
Final report

Data & Digital Strategy
Released

Beta APIs
Released

New Aged Care Act
In effect

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A mosaic of non-standard data collections

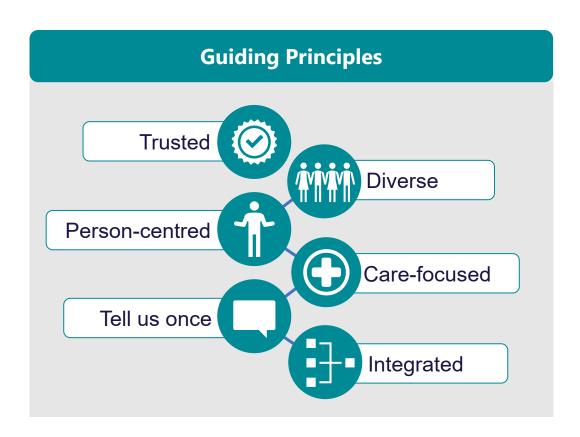- Rapid reform has resulted in many bespoke data collection methods for Government, in an ecosystem already containing many data collection tools

- Example: functional assessments

- Aligning & enhancing data will:
  - Allow for reuse
  - Achieve required granularity
  - Enable information to move with care recipient

Aged Care Data & Digital Strategy 2024-2029

Guiding Principles

- Trusted
- Diverse
- Person-centred
- Care-focused
- Tell us once
- Integrated

Key Components of the Strategy include:

- establishment of unified **data standards** to enhance interoperability across services
- modernisation of **digital infrastructure** through platforms like the GPMS
- improving **data collection methods** to inform policy and service delivery

https://www.health.gov.au/resources/collections/aged-care-data-and-digital-strategy-2024-2029

Aligning & Enhancing Data

Delivering the **Aged Care Data & Reporting Review (ACDARR)** with support from academic consortium. This will chart a path to aged care data of high quality, granularity, accessibility – streamlining provider reporting and enabling effective system stewardship

Partnering with AIHW to deliver the **National Minimum Data Set (NMDS)** and **National Best Practice Data Set (NBPDS)** which standardise government data collection and guide aged care providers in collecting high-quality data

Partnering with ADHA to deliver **aged care system** and **interoperability standards** which improve consistency and transferability of clinical information

Implementing the **Business to Government (B2G)** API gateway, aligned to FHIR standards, to support timely and accurate reporting

Australian Government
Department of Health, Disability and Ageing

NMDS development and alignment with Sparked

Aged Care Data Domains	2024-25	2025-26	2026-27
Person	**NMDS v2** development	**NMDS v2** implementation	**NMDS v3** implementation
Assessment			
Provider			
Workforce		**NMDS v3** development	
Financial			
Clinical		**ACCIS v2**	**NMDS v4** development
Care needs			

DRAFT

Alignment between the current NMDS & relevant AUCDI

Complementary iteration of AUCDI & NMDS, across key areas such as:

Client information & history:
Health conditions/disease diagnosis
Treatments and procedures
Goals and rehabilitation
Directives and POA

Clinical/care information, including:
Medications
Skin condition
Nutritional status
Cognition
Psychosocial factors
Functional status & activity
Continence

Next Steps

Working together to:

- Create cross-sector alignment
- Prioritise changes
- Align timeframes
- Build capacity

Contact us

Aged Care Data Improvement (ACDI@health.gov.au)

Aged Care Data & Reporting Review (ACDARR) (acdarr.project@uq.edu.au)

Aged Care Digital Transformation Sector Partners (DTSectorPartners@health.gov.au)

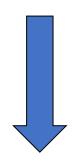# Health assessments – Primary Care in Aged Care
Steven Kaye

Discussion:

- Work Flow

- Workforce

- Data location, access & maintenance

Elderly person living in community

Medical Care delivered via community General Practice (GP, nurses, Allied Health) in surgery or home visits.
Data noted in clinical record, usually stored in a server located at the GP Office.
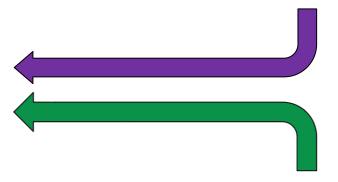
Elderly person transitions into RACH (Residential Aged Care Home)

- *Original GP Data unlikely to be copied into the RACH clinical record (requiring fresh start and loss of historical data)*
- *Replication of information in RACH & GP clinical record (with consequent errors, omissions and inaccuracies)*

Medical Care delivered in RACH by either usual GP (as prev) or new RACH-specific GP

Data primarily documented in RACH or GP clinical record, usually with manual (?incomplete) replication (re-typing) in the other

Context:

- Currently, there are approximately 200,000 Australians in Aged Care
- Australia is rapidly ageing—by 2057, over 22% of the population will be 65+ (Estimated population in 2057 = 39,000,000: 22% is 8,500,000)

Role of GPs in aged care:

- GPs provide vital chronic and complex care to residents
- Challenge to create enthusiasm for GP involvement in Aged Care
- System (digital) needs to be synchronised between GP & RACH, with full interoperability, to optimise care/reduce barriers

Workforce shortage & demographic pressures

Nearly 10% of GPs are over 70, and almost a third plan retirement within 5 years (RACGP Health of the Nation 2024).

Heavy administrative burden

GPs report "underfunding and increased administrative burdens" as barriers to effective RACH care delivery.

Poor interoperability between clinical and aged care systems
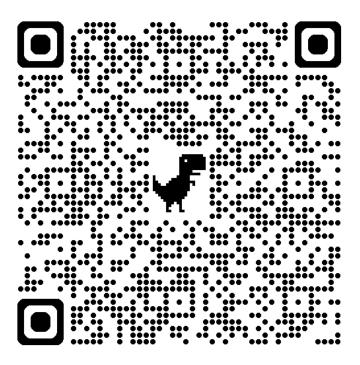
Documentation often remains siloed in Residential Aged Care systems, GP clinical information systems and hospitals leading to fragmented care and duplicated effort.

RACGP Standards—Bridging the Gap

Standards for general practice in Residential Aged Care Facilities.

Launched to align GP workflows with the Aged Care Quality Standards.

These voluntary standards aim to reduce duplication, clarify roles, improve communication and support infrastructure.

Enhanced Patient Outcomes

1. Better coordination = fewer errors and delays**.**

2. Prevention and early intervention via real-time access to health information and trends.

3. Continuity of care ensures consistent relationships with a trusted GP, reducing unnecessary medication/therapy changes.

4. Lower hospitalisation rates anticipated due to timely chronic-condition management and proactive care.

Call to Action

RACGP & SPARKED collaboration

Key to success are GPs and aged care providers being involved in the *co-design* of data standards and adopting the RACGP standards for aged care.

Policy support needed

Advocate for funding that supports *interoperability* through the adoption of standards.

Conclusion

Summary: Standardising aged care data via the work being done by the CSIRO Sparked program and embedding RACGP Standards offers a powerful solution to some of the key challenges facing GPs providing care at RACHs and with uplifting patient outcomes.

Final thought: Healthier, more efficient aged care relies on well-supported, engaged GPs who are the foundation of the system.

Back at 11:05am

Morning tea

Health assessments – Paediatrics

Kim Drever
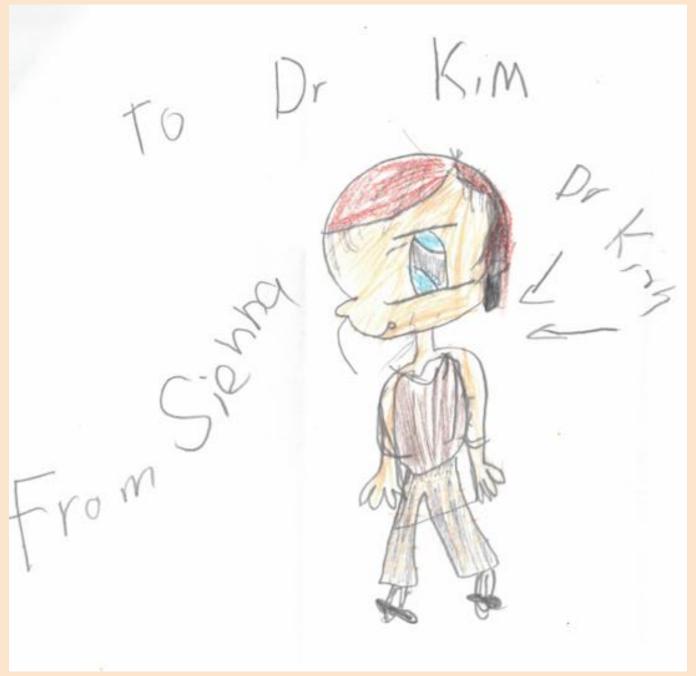
Acknowledgment Of Country

We meet on the indigenous land of
Gadigal people of the **Eora Nation**
and that the sovereignty of this land was never ceded.
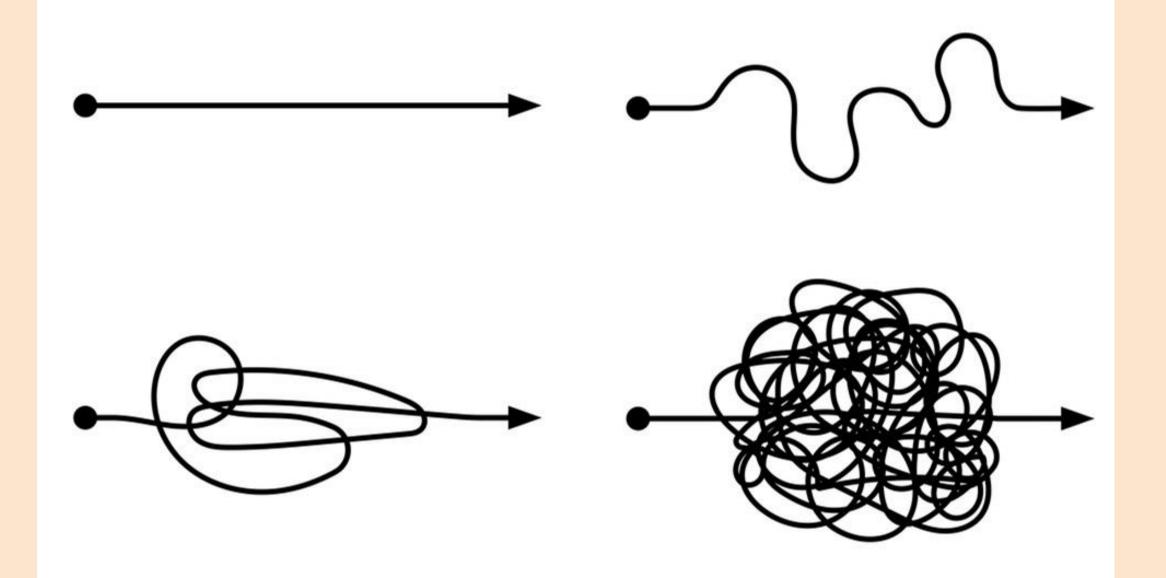
I pay **respect to Elders** past, present & emerging

Developmental Spurt
Attentional Capacity

Developmental Spurt
Working Memory

Developmental Spurt
Goal Setting Skills

9
10
11
12
13
14
15
16
17
18
19

Ongoing increase in planning skills

Planning skills reaching maturity

Peak planning a[t]

Inattention, impulsivity and distractibility decreases.

Gender cross over. Boys have higher levels of attentional capacity and working memory (to 11 and 13 respectively) but this changes here.

Ability to set goals and plan/priorities is at adult levels but nature of strategies changes.

More likely to give weight to "pros" over the "cons".

Cross over in "reward sensitivity" Weight now given to negativ[e] possibilities as w[ell] as positive.

experience.).

From around 15 years old
Working memory, shifting attention and inhibitory control relatively stable and close to adult level.

HUMAN BRAIN DEVELOPMENT[3]

SENSORY PATHWAYS (VISION, HEARING)

LANGUAGE

HIGHER COGNITIVE FUNCTION

CONCEPTION   BIRTH   (months)   (years)

-8 -7 -6 -5 -4 -3 -2 -1   1 2 3 4 5 6 7 8 9 10 11   1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19

AGE

[3] Adapted from: Nelson Nelson, C. A. (2000). The neurobiological bases of early intervention. Cambridge University Press.

HUMAN BRAIN DEVELOPMENT[3]

SENSORY PATHWAY (VISION, HEARING)

LANGUAGE

HIGHER COGNITIVE FUNCTION

-8 -7 -6 -5 -4 -3 -2 -1 1 2 3 4 5 6 7 8 9 10 11 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19

CONCEPTION   BIRTH   (months)   (years)
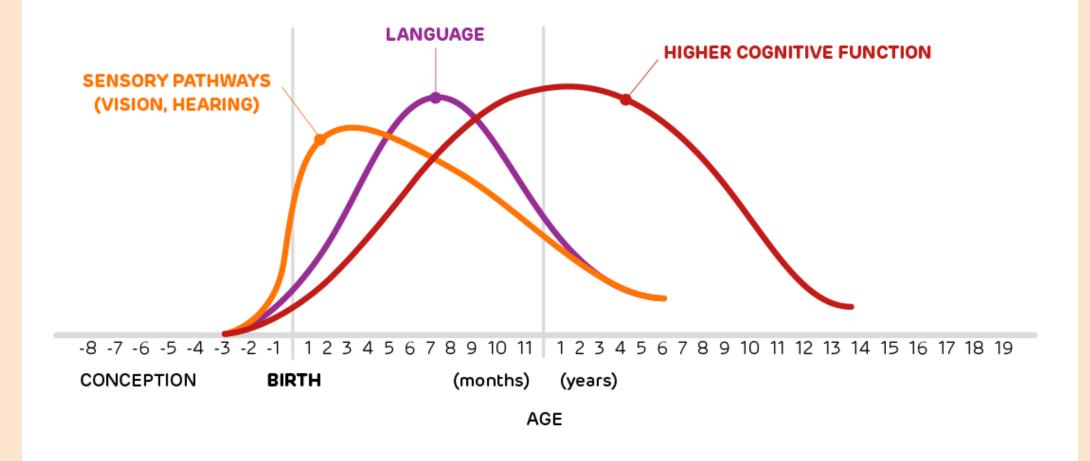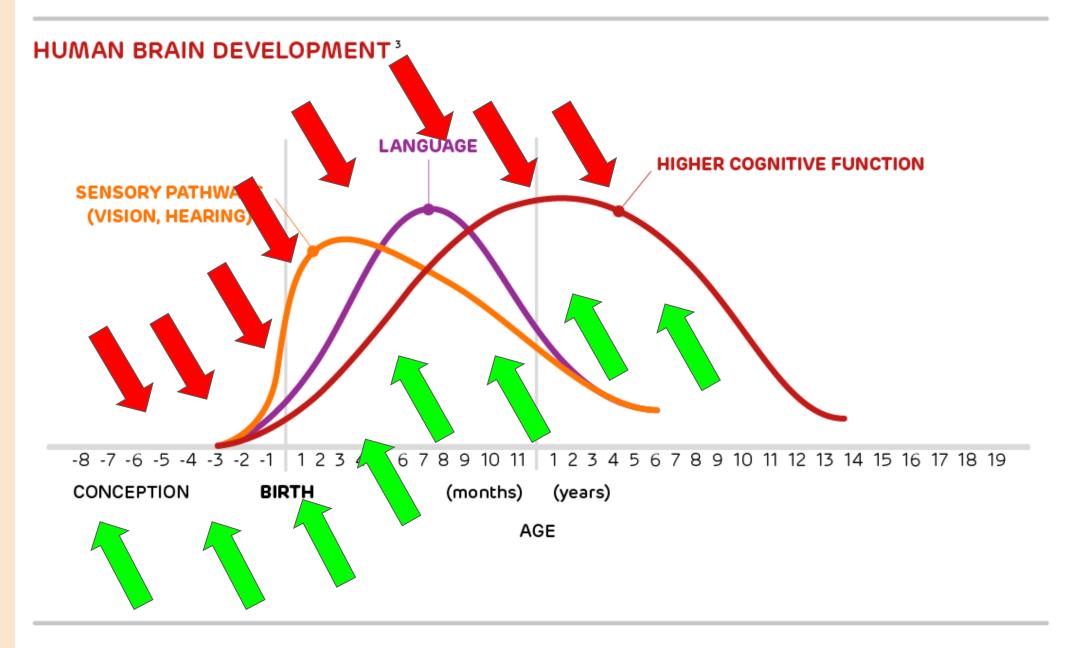
AGE

[3] Adapted from: Nelson Nelson, C. A. (2000). The neurobiological bases of early intervention. Cambridge University Press.

Deep Medicine
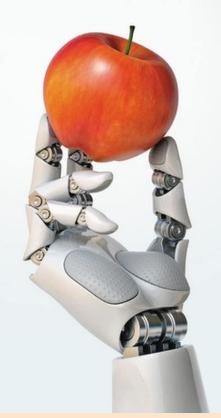
Deep Understanding of the child

Deep Learning - interpretation of clinical evidence and context

Deep Empathy - listening with my whole body, getting to know and care
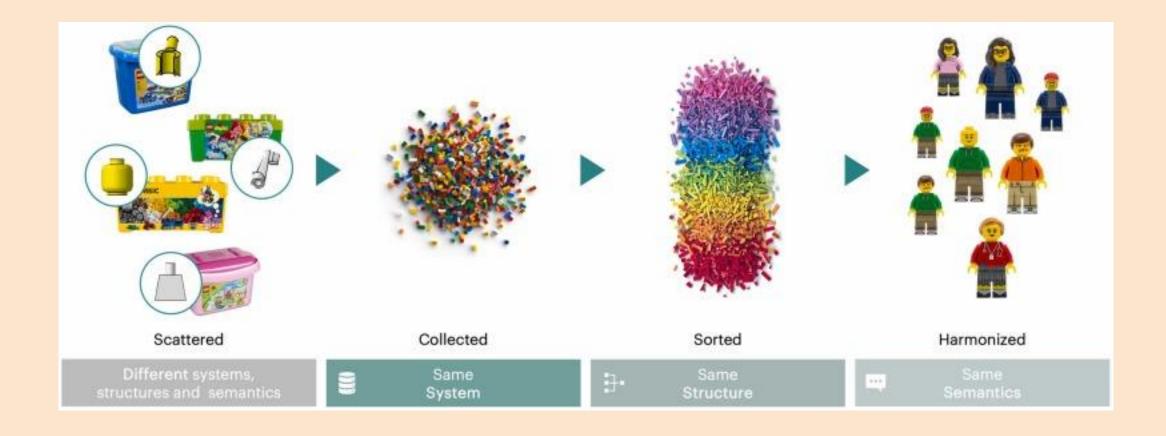
Fig. 2. Simplified steps to make data interoperable: interoperability is the result of a transformative process in which scattered information is transformed to interoperable data through the collection, sortation and harmonization ensuring the same system, structure and semantics, respectively.

WHAT DATA ?
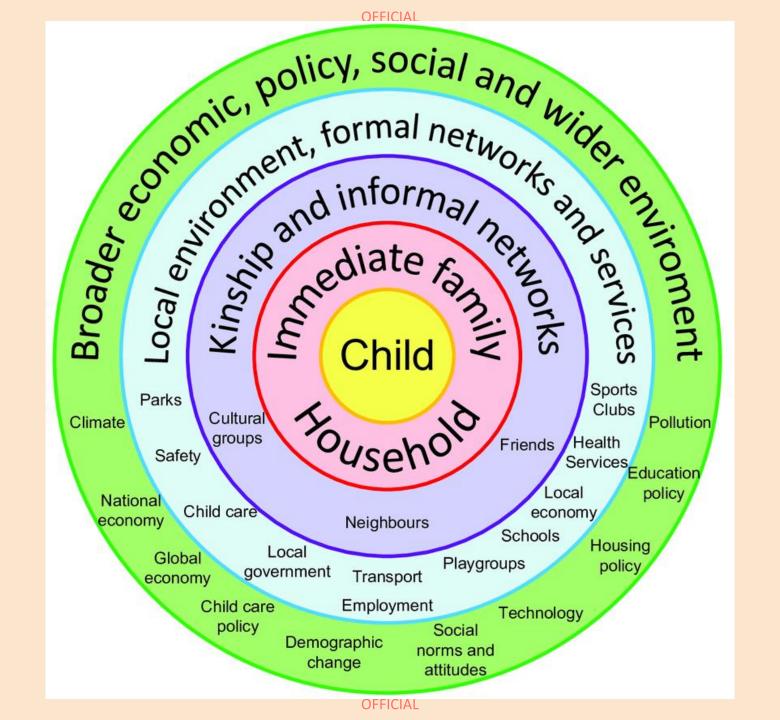
- **Longitudinal Growth and Development Data**: Not just results, but trends—plotted and queryable across care settings (including special populations like Down syndrome or prematurity).

- **Birth and Perinatal Detail**: Structured, accessible, and standardised.

- **Developmental Screening and Results**: Coded, with date, tool, domain, outcome, and examiner—all queryable and updatable.

- **Family and Social Determinants**: Mechanisms to surface lived context—household structure, risk factors, service involvement—fused from across systems.

- **Who, When, Where**: Provenance MUST be explicit for every key assessment.

- **Transition and Summary Data**: Structured, not narrative-only—allowing safe handover and "the story at a glance."

Just pick one
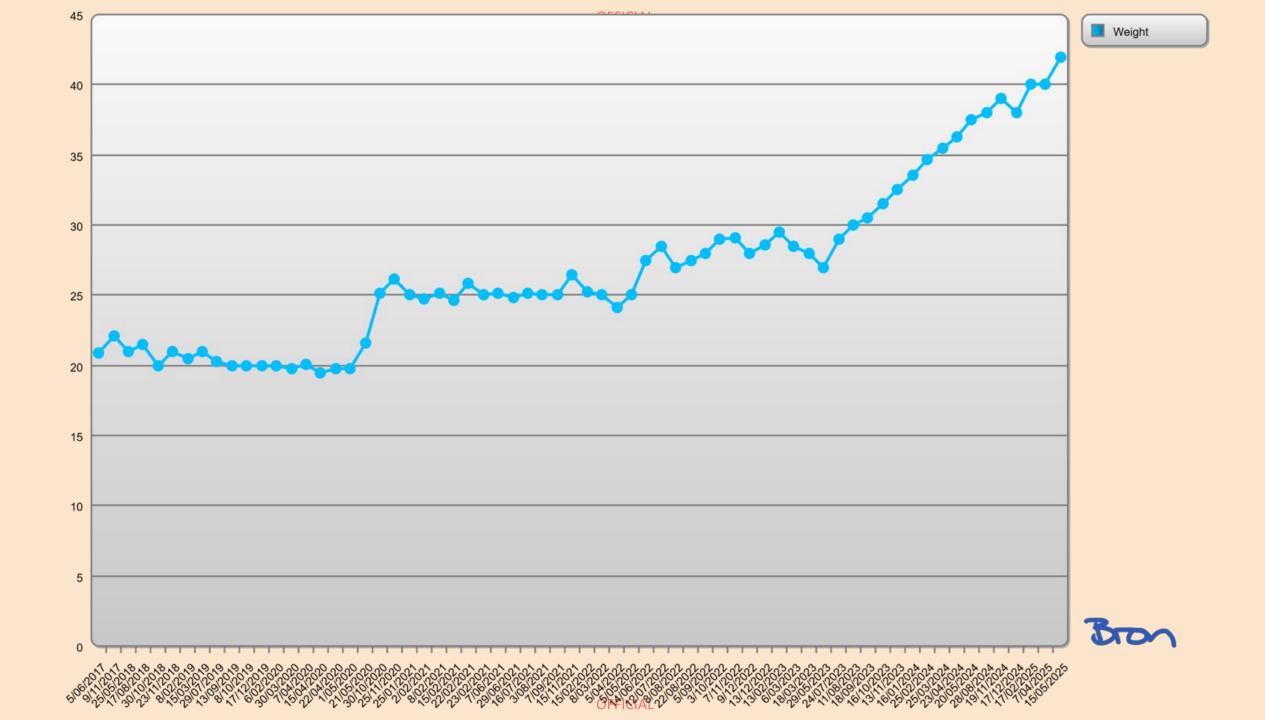
But I want more….
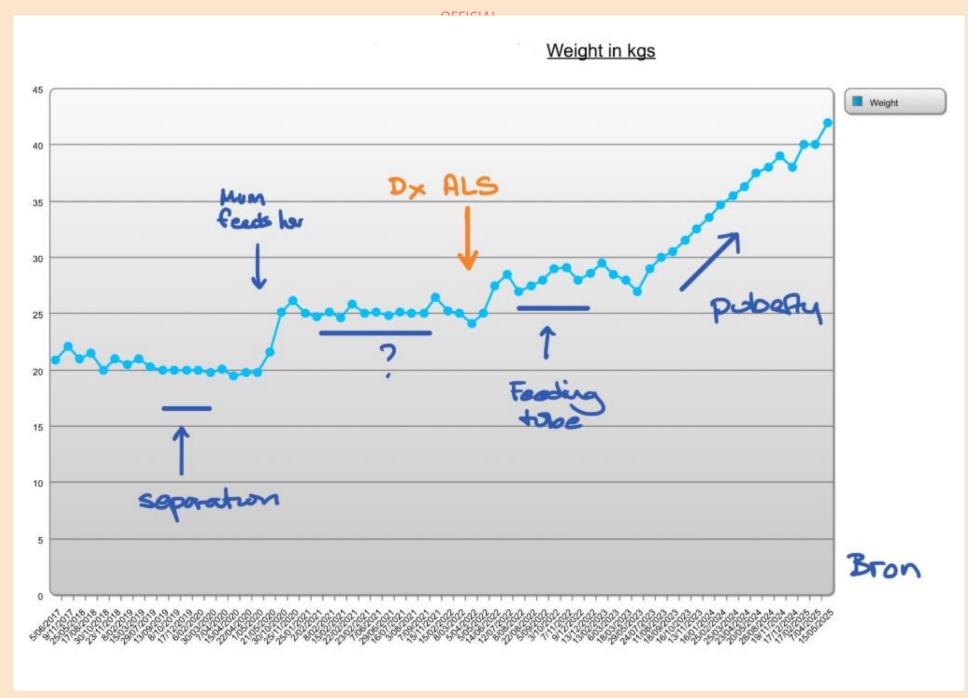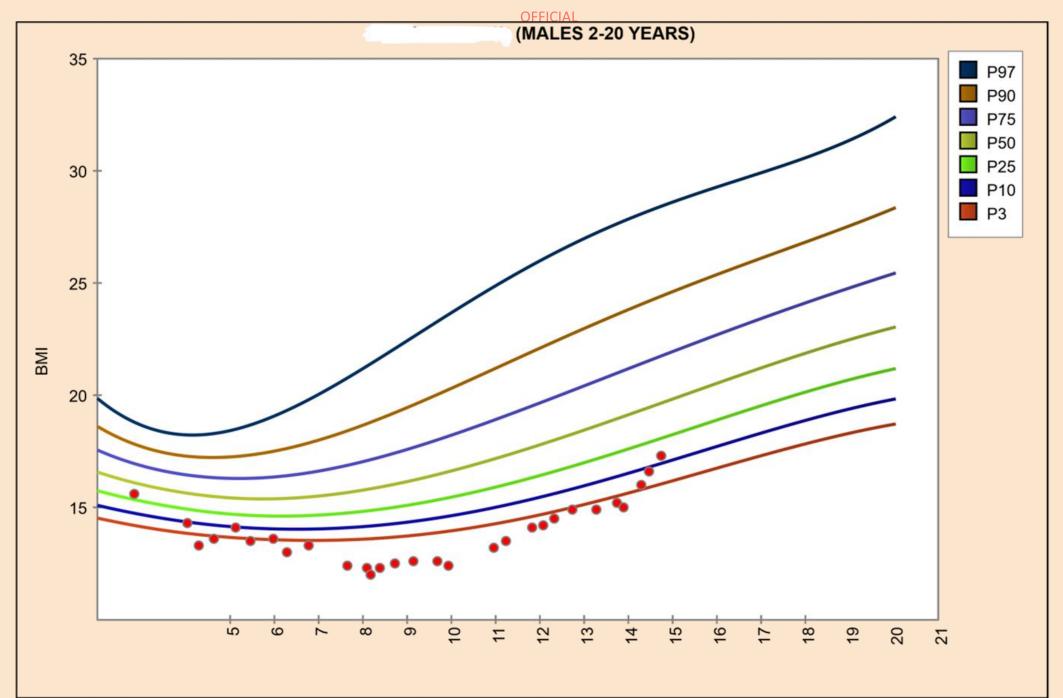
Over time

GROWTH CHARTS
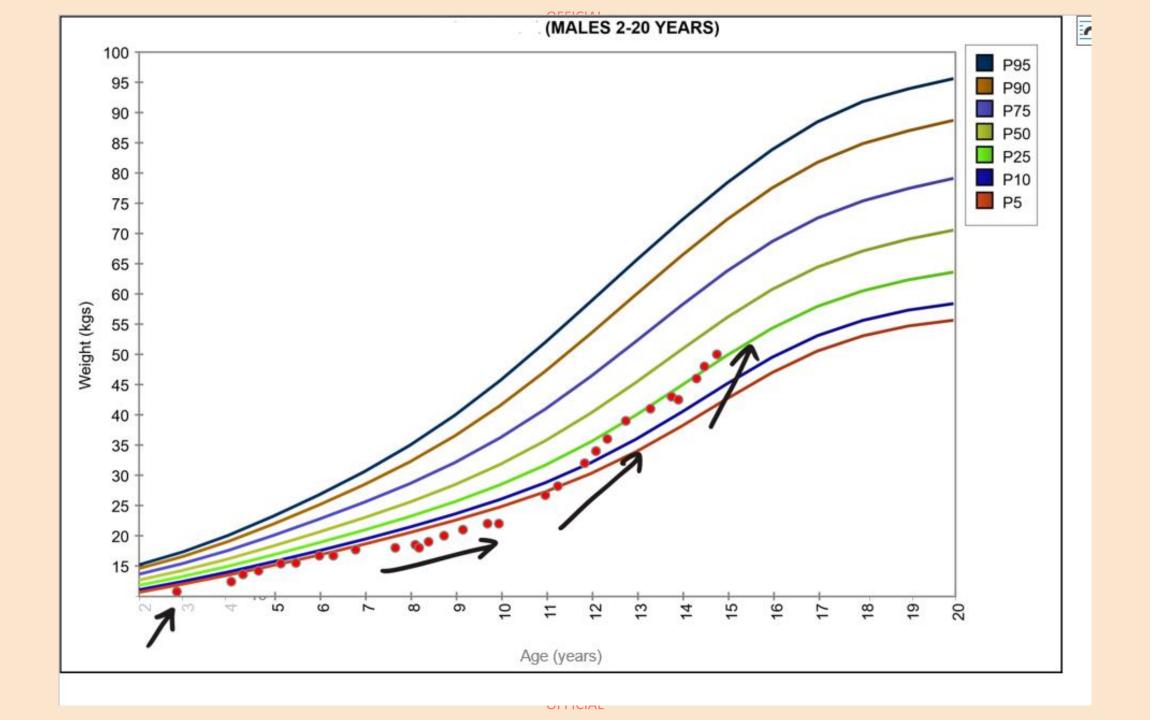
Picture tells a thousand words

Weight in kgs

(MALES 2-20 YEARS)

(MALES 2-20 YEARS)

Yinfei TURNOUR (MALES 2-20 YEARS)

(MALES 2-20 YEARS)

(MALES 2-20 YEARS)
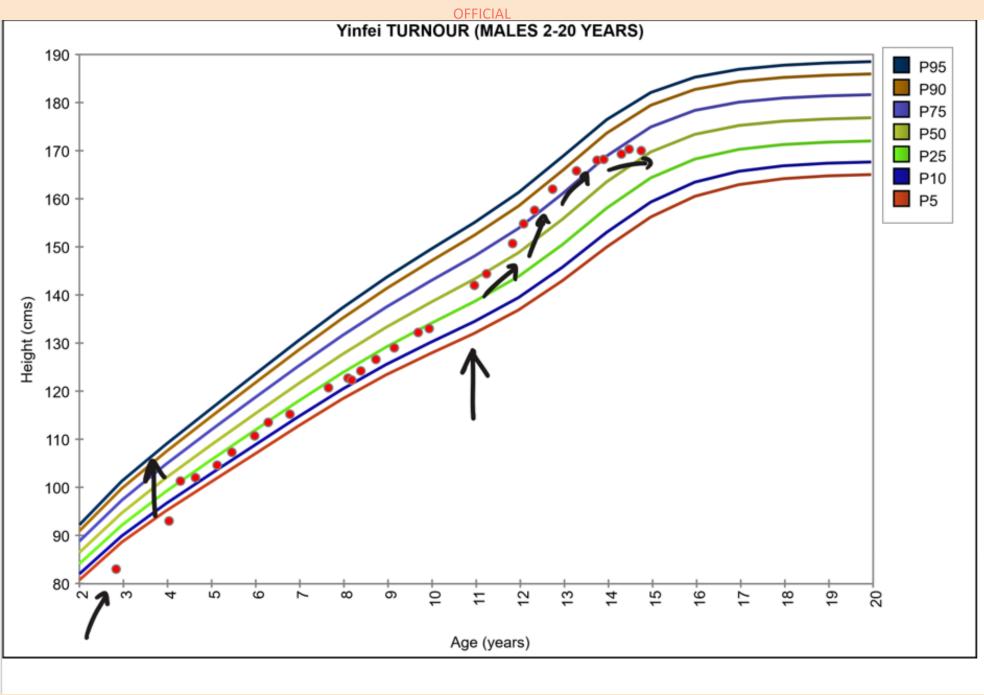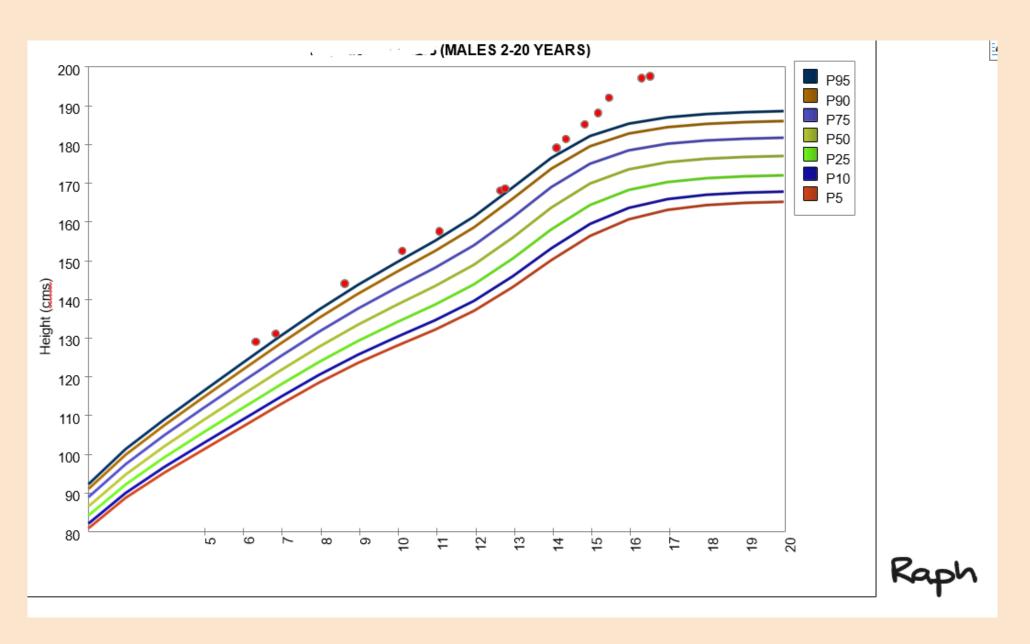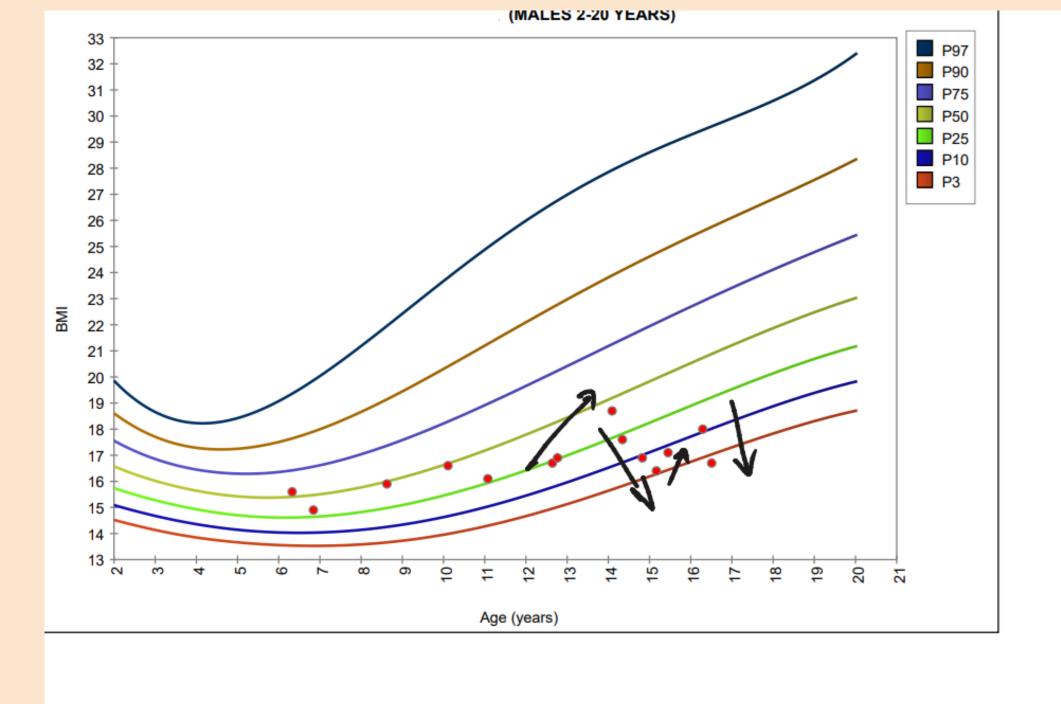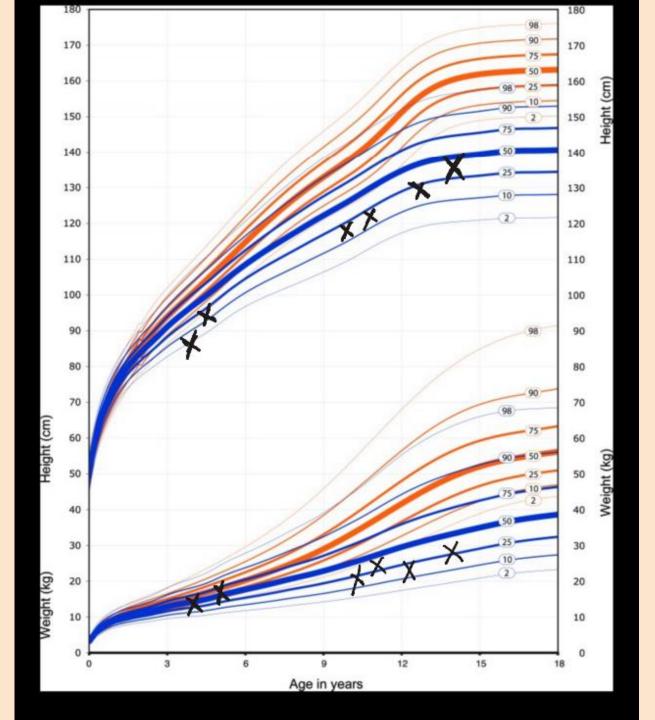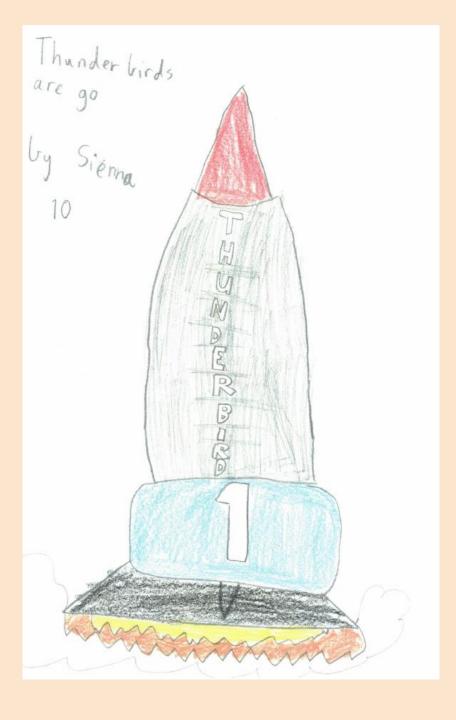
The right canvas

Poop Warfare

Thunderbirds are go

by Sienna

10

Future Focused
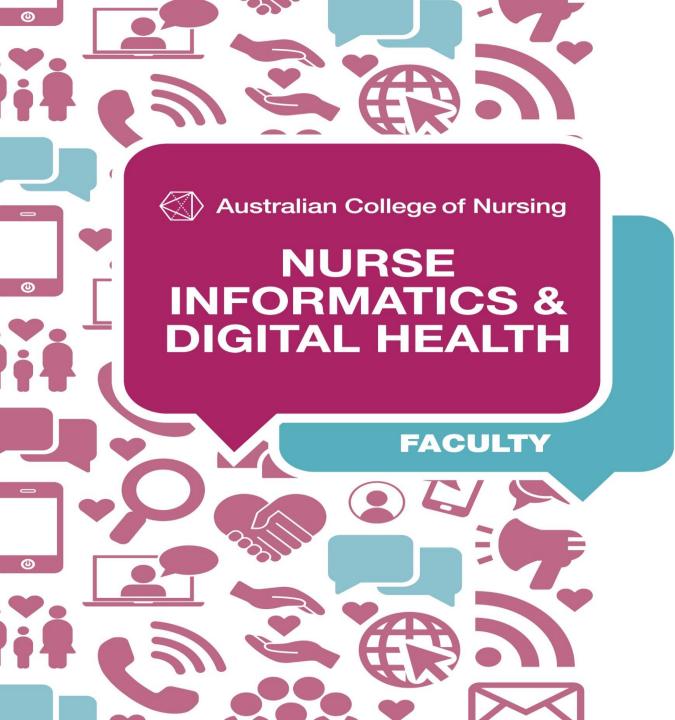
I believe that children are our future. Teach them well and let them lead the way. Show them all the beauty they possess inside.

Whitney Houston

quotefancy

Health assessments – Nursing
Janette Gogler

Nursing assessment data in Chronic Disease

Janette Gogler
Chair of Faculty

Case study 1   COPD & Type 1 Diabetes - Melanie

54 yrs old with PhX of smoking & environmental hazard of toxic fumes

Dx by GP 18months ago; frequent flyer (Emergency Dept)

Been in program for a few months with goal to self manage better acute exacerbations , behaviour change

Home visits by CNC :

Apply Remote Patient Monitoring (RPM) – obtain more accurate data

BSL, O2 Sats, spirometry, daily questionnaire

Visit includes: auscultation , psycho-social assessment, physical, including sputum colour, consistency and volume, knowledge of disease, medications

Referral to dietitian

NURSE INFORMATICS & DIGITAL HEALTH FACULTY

Australian College of Nursing
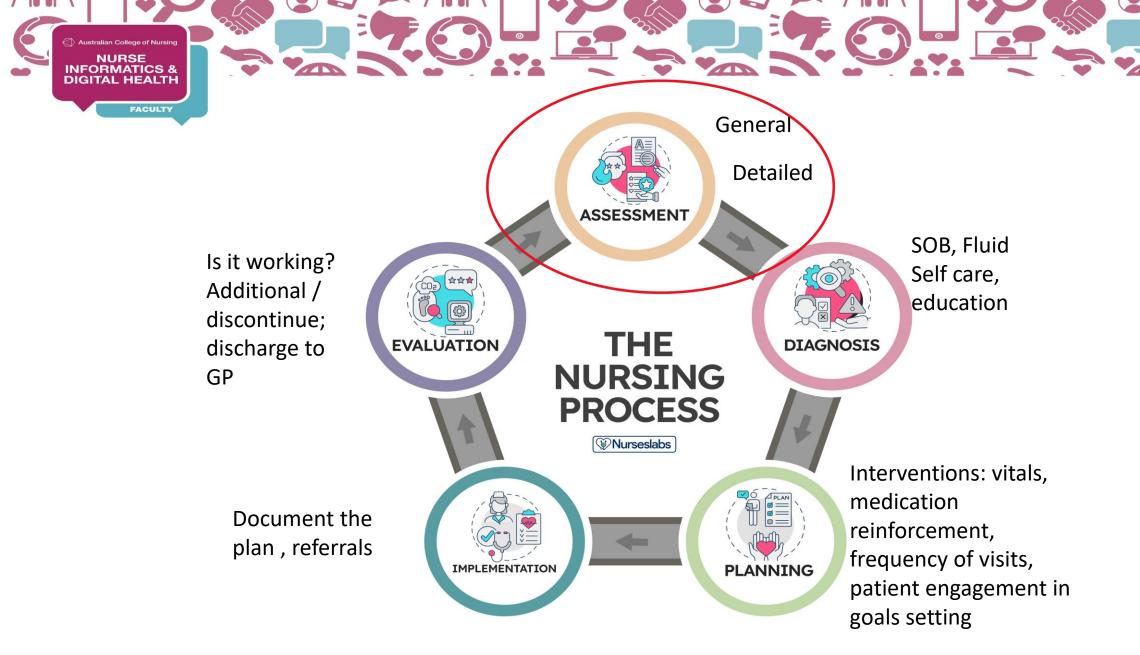
- Acute care - in ED O2 sats low

RESPIRATORY	
Respiratory Symptoms	
Work of Breathing	
Respiratory Pattern	
Oxygen Delivery	
Mask/Delivery Type	
SpO2	%
Oxygen Flow Rate	L/min
FiO2	%
Cough and Deep Breathe	

- 4AT – Cognitive impairment / Delirium Score

- Falls risk – history of falls

- MUST /MST – nutrition risk high risk

- BSL 14 – monitor diabetes

- Braden - skin condition risk of pressure injury

- Education - medication, bronchodilators, self mg antibiotics, steroids by colour of sputum

- Spirometry reading - bedside readings

- Respiratory technologist – lab

Mandatory assessments

Cognition /Delirium

High Risk due difficulty eating

Example of Braden

Sensory Perception		Moisture		Activity		Mobility		Nutrition		Frict S
No Impairment	4	Rarely Moist	4	Walks Frequently	4	No Limitations	4	Excellent	4	
Slightly Limited	3	Occasionally Moist	3	Walks Occasionaly	3	Slightly Limited	3	Adequate	3	N Appa Prol
Very Limited	2	Very Moist	2	Chair bound	2	Very Limited	2	Probably Inadequate	2	Pote Prol
Completely Limited	1	Constantly Moist	1	Bedbound	1	Completely Immobile	1	Very Poor	1	Prol

FALLS RISK ASSESSMENT TOOL (FRAT)

Part 1—Fall Risk Status

Risk factor	Level	Risk score
Recent falls (To score this, complete history of falls, overleaf)	none in last 12 months	2
	one or more between 3–12 months ago	4
	one or more in last 3 months	6
	one or more in last 3 months whilst inpatient/resident	8
Medication Sedatives, Anti-Depressants Anti-Parkinson's, Diuretics Anti-Hypertensives	not taking any of these	1
	taking one	2
	taking two	3
	taking more than two	4
Phychological Anxiety, Depression Cooperation, Insight or Judgement esp, re mobility	does not appear to have any of these	1
	appears mildly affected by one or more	2
	appears moderately affected by one or more	3
	appears severely affected by one or more	4
Cognitive status MMSE Hodkinson Abbreviated Mental Score or MMSE	m-m score 9 or 10/10 **OR** intact	1
	m-m score 7–8 mildly impaired	2
	m-m score 5–6 mod impaired	3
	m-m score 4 or less severely impaired	4

(Low Risk: 5–11   Medium Risk: 12–15   High Risk: 16–20)   **RISK SCORE:** /20

Other assessment /actions

- Fear – reassure

- Shortness of breath limiting life style – activity intolerance

- Weight loss – need caloric intake increase – food chart

- Fluid intake/loss – urine output

- Sputum – amount, colour, viscosity – send for culture

- Sitting up to sleep

- Oxygen needed – nasal prongs

- BSL reading regularly

Goals

- Comfort
- Air entry improvement
- Increase weight – dietitian
- Education - medication, lifestyle

Nursing care plan

	Component	Status	Dos...	Details

Impaired Respiratory Function Care Plan (Planned Pending)

◢ Outcomes

👆 **Please review the following goals. Select/unselect those that do/do not apply to this patient's care.**

☑	◉ Knowledge of Medication Regime	By Discharge
☑	◉ Effective Breathing	By Discharge
☑	◉ Normal Oxygenation Saturation	By Discharge
☑	◉ Reduced Level of Anxiety	By Discharge
☐	◉ Patient Specific Goal 1	

◢ Interventions

👆 **Please review the following orders and interventions. Select/unselect those that do/do not apply to this patient'**

☑	📋 Activity as Tolerated	
☑	📋 Pulse Oximetry	T;N, Constant Order
☑	📋 Auscultate Lung Sounds	T;N, Constant Order
☐	📋 Application of Oxygen Therapy/Humidification Therapy	

👆 **For CO2 Retainers- Discuss O2 Therapy with Medical Staff**

☐	📋 Strict Fluid Balance	T;N, Constant Order
☐	📋 Patient Specific Intervention 1	
☐	📋 Referral to Physiotherapy (Initial)	
☑	📋 Add Respiratory Alteration to Problems List	T;N

Mapping Assessments and Measures in Aged Care research project

Katie Packer

CSIRO

Towards Standardised Terminology in Aged Care

Katie Packer | Australian E-Health Research Centre (AEHRC) – July 2025

I would like to begin by acknowledging the Gadigal People as the Traditional Owners of the lands that we're meeting on today, and pay my respect to their Elders past and present.

'Eternal Wisdom, Infinite Innovation'
artwork by Rachael Sarra, working with Gilimbaa.

Why I care about data standards for aged care?

Problem

Repetition

Direct client care

Silos

Frustrating

Inefficient

Workforce
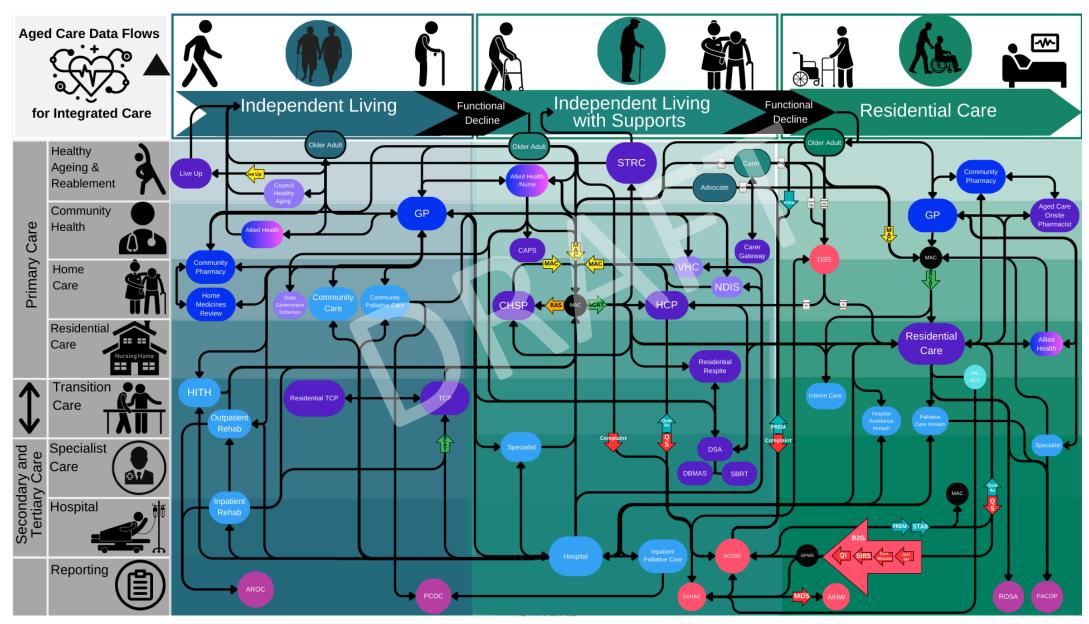
20 years as a physio working across health and aged care taught me how fragmented data collection creates inefficiencies and frustration for older adults. Better standards mean better care, less duplication and more time for what matters.

- Older adults with multi-morbidity often require coordination of multiple services across health and social care sectors.
- Significant repetition and redundancy in data collected.
- Lack of standardisation in data collected leads to:
  - ➢ Inefficiency in data collection and utilisation
  - ➢ Increased assessment burden for clients and carers
  - ➢ Limited Collaboration

Where data should flow, but doesn't.
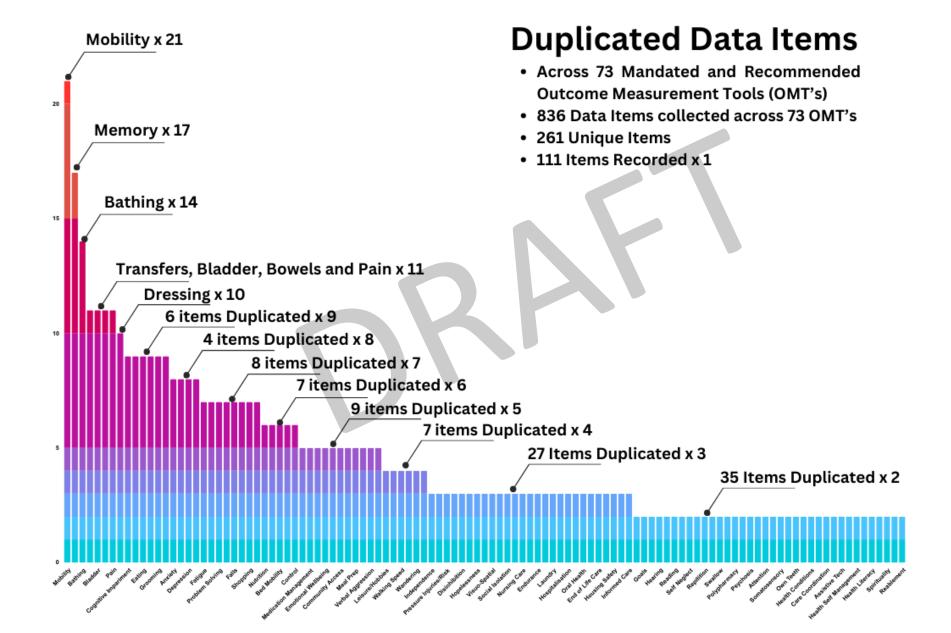
Why focus on Measurement Tools?
Structured but disconnected data

- Measurement tools – may include screening, assessment or outcome measurement tools

- Used to collect structured data in a standardised way & provide a common language for assessment and communication

- Some measurement tools are mandated for use, some are chosen by individual, clinician or organisation

- Current use is fragmented and siloed, with frequent duplication

- Lack of standardisation of both:
  ➢Measurement tools used.
  ➢Data items within these tools

Current landscape of mandated and recommended tools

Duplicated Data Items

- Across 73 Mandated and Recommended Outcome Measurement Tools (OMT's)
- 836 Data Items collected across 73 OMT's
- 261 Unique Items
- 111 Items Recorded x 1

Mobility x 21

Memory x 17

Bathing x 14

Transfers, Bladder, Bowels and Pain x 11

Dressing x 10

6 items Duplicated x 9

4 items Duplicated x 8

8 items Duplicated x 7

7 items Duplicated x 6

9 items Duplicated x 5

7 items Duplicated x 4

27 Items Duplicated x 3

35 Items Duplicated x 2

Survey Insights: What tools are clinicians using in practice

Distribution of All Measurement Tools Used by Respondents

- Overall 355 different tools were reported as being used by at least 1 participant.
- 13 of these tools were used by >100 participants
- 35 of these tools were used by > 50 participants
- 145 of these tools were used by >10 participants
- 6 different tools used by > 50%
- There was 100 tools with n=1 respondent

Mandated and Recommended Tools

- DOHAC - Aged Care
- DOHAC - Medicare
- Other Federal Social Supports (NDIS, DVA, DSS)
- Clinical Registry
- International (ICHOM & WHO)
- State Government Health & Social Care

Most Commonly Used Tools (Top 50)

The chart is sorted by overall ranking of tools which is calculated by the total number of unique respondents for each tool. Each respondent was only counted once in the overall total, but for respondents with multiple professions their tool usage was attributed to all of their professions.

As a result, some bars may appear larger than their rank-order would suggest because respondents with multiple professions contributed to multiple categories.

Tools (top to bottom): TUG, Falls - last year, Berg Balance Scale, MMSE, 30s/5x-STS, Grip Strength, GDS, Pain - VAS, 6MWT, Single Leg Stance, MBI, FRAT, Falls - 3 months, Falls - last month, Gait Speed, RUDAS, Clock Drawing Test, Functional Reach, DEMMI, Abbey Pain Scale, Step Test, BORG - RPE, FIM, FROP-COM, BMI, DASS-21, Functional Gait Ax, Waterlow, Braden Scale, 4AT, Rockwood, Falls with Injury, MNA, Barthel, FROP-COM Screen, Clinical Frailty Scale, Caregiver Strain, SF-36, Tandem Walk Test, MSQ, Hospitalisation, FES-I, Dynamic Gait Index, CAM, Mini-BEST, COPM, 2MWT, Weight Loss > 5%, Owestry DI, Stay on Your Feet, 4 Stage Balance Test

Legend (professions): Physio, OT, EP, Dietician, Pharmacy, Social Work, Podiatry, Speech, Music Therapy, Psychology, Other AH, Nursing, Geriatrician, GP/Other Med, Researcher

Mandated and Recommended Tools

- ● DOHAC - Aged Care
- ● DOHAC - Medicare
- ● International Organisations (ICHOM & WHO)
- ● State Government Health and Social Care
- ● Clinical Registry

DRAFT

Tools with broad multi-disciplanary applicability (Top 50)

DRAFT

Data has been proportionally adjusted based on group size to better reflect and highlight the tools that are applicable across multiple disciplines.

Tool labels (top to bottom):
GDS, MMSE, Clock Drawing Test, RUDAS, TUG, FRAT, Falls - last year, MBI, DASS-21, Falls - 3 months, BMI, Abbey Pain Scale, Grip Strength, Pain - VAS, Gait Speed, Falls-last month, Berg Balance Scale, 6MWT, Rockwood, 30s/5x STS, Waterlow Score, 4AT, Single Leg Stance, FIM, Hospitalisations, MSQ, MNA, HADS, Cornell Scale, Braden Scale, Kessler, FROP-COM, Barthel Index, Clinical Frailty, Trial Making Test, ACE, Caregiver Strain, QOL-ACC, PAS-CIS, CAM, End of Life, ED Presentation, Weight Loss>5%, SF-36, Falls with injury, DEMMI, GAI, Functional Reach, MUST

Legend (disciplines):
Physio, OT, EP, Dietician, Pharmacy, Social Work, Podiatry, Speech, Music Therapy, Psychology, Other AH, Nursing, Geriatrician, GP/Other Med, Researcher

Mandated and Recommended Tools
- DOHAC - Aged Care (black)
- DOHAC - Medicare (yellow)
- International Organisations (ICHOM & WHO) (grey)
- State Government Health and Social Care (green)
- Clinical Registry (magenta)

CSIRO

Mapping measurement tool data items and areas of duplication

CSIRO

Physical
- Bed Mobility
- Sitting (81)
- Transfers
- Mobility
  - Can you walk?
    - Yes
      - Independence
      - Walking Speed (77)
      - Walking Aids — Do you use a walking aid? (89)
      - Walking Difficulties
      - Change in Mobility (37)
      - Endurance
      - Community Access
      - Dynamic Gait
    - No
      - **Unable to Walk**
      - **Integrated Assessment Tool (IAT) Mobility (Completely Unable)**
      - **InterRAI (Walking) Unable to walk at all =8**
      - **InterRAI - LTCF - Activity did not occur during the entire period**
      - **FROP-COM (Indoor Mobility) = 3**
      - **Mini-Nutritional Assessment (MNA) (Mobility) = 0**
      - **Braden Pressure Injury Scale (Mobility) - Completely Immobile: = 1**
      - **EQ-5D (Mobility) = 2**
      - **WHO-QOL-BREF (Mobility) = 1**
      - **Functional Ambulation Catagories (FAC) = 0**
      - **FRAIL Scale (Ambulation) = 0**
      - **FRAIL Scale (Resistance) = 0**
      - **WHO-DAS (Indoor Mobility) - Extreme Difficulties/Unable = 5**
      - **Oswestry Disability Index - I am in bed most of the time = 5**
      - Do you use a Wheelchair?
      - What is your primary mode of locomotion indoors?
        - Wheelchair/Scooter (28)
        - No Regular Locomotion (24)
- Standing
- Dynamic Balance
- Stairs
- Falls
- Physical Activity/Exercise

"Mrs Jones is able to walk with physical assistance from 1 person"
= 4 levels of granularity
"Able to Walk"
"With Assistance"
"Physical Assistance"
"Of one person"

Mrs Smith is unable to walk
= Single level of granularity
"Unable to walk"

DRAFT

Physical

- Sitting — (81)
- Transfers — (...)

Mobility — Can you walk?
- Yes
  - Independence — Do you need assistance or supervision from another person to walk around your home?
    - No — (23)
    - Yes
      - **Assisted Mobility**
      - DEMMI (Gait Speed) = 0
      - DEMMI (Mobility Independence) = 0
      - OARS (Mobility) = 1
      - FROP-COM (Indoor Mobility) = 2
      - SPICT - Indicator
      - FRAMP - Indicator
      - Integrated Assessment Tool (IAT) Mobility (With Some Help)
    - Amount of Assistance — (...)
    - Who Helps You? — (8)
    - Is your need for assistance with walking being met? — (6)
  - Walking Speed — (77)
  - Walking Aids — Do you use a walking aid? — (69)
  - Walking Difficulties — (...)
  - Change in Mobility — (37)
  - Endurance — (...)
  - Community Access — (...)
  - Dynamic Gait — (...)
- No — (88)

- Standing — (...)
- Dynamic Balance — (...)
- Stairs — (...)
- Falls — (...)
- Physical Activity/Exercise — (...)
- Frailty — (6)
- Strength and Range of Movement — (...)
- Motor Planning (Psychomotor Skill) — (67)

"Mrs Jones is able to walk with physical assistance from 1 person"
= 4 levels of granularity
"Able to Walk"
"With Assistance"
"Physical Assistance"
"Of one person"

Amount of Assistance
— What Type of Assistance do you need?
- Supervision (5)
- Verbal Assistance/Prompts (1)
- Physical Assistance
  - Requires physical assistance to walk.
  - Consider Taxi Subsidy Scheme Eligibility
  - Elderley Mobility Scale Mobility= 0
  - FROP-COM = 2

- How many people do you need to assist you?
  - 1 person
    - Needs physical assistance from 1 person to walk
    - Contributing Factor to Pressure Injury Risk. Needs Assistance to Walk
    - Barthel Index = 2
    - Modified Barthel Index = 8
    - Braden Pressure Injury Scale = 3
    - Barthel Index = 2
    - STRATIFY - Risk Assessment Tool - Mobility - Assistance of 1 person or use of aid = 2
  - More than one person (10)

- How much assistance do you require? (17)

Consistency of Assistance (...)

Survey Insights: Digital Infrastructure and standards as enablers

Digital infrastructure and data standards are critical enablers to use of MT's and to collaboration in aged care.

- Interoperable systems for data sharing
- Improving clinicians and client access to data
- Standardised terminology for interoperability (including interoperability of data items between MT's)
- Integrating measurement tools with EHR's and Care Plans
- Streamlined "Core-sets" of measurement tools and "Tiered sets" with centralised directories of tools including summaries, scoring guidelines and cut-off values)
- Shared data platforms for centralised collection and storage of data of care plans and measurement tools – to support longitudinal data collection and access.
- Standardised, but flexible, evidence-based assessment templates
- Digital tools and templates that collaborative and dynamic.
- Digital Features such as – Automated scoring and reporting, decision support, data extraction tools, links to age-graded norms, trend visualisation, logic-based skipping,
- Collecting data for primary clinical uses and re-using this for secondary uses (e.g. compliance, funding, clinical registries and quality indicators) to improve data utility.
- Research to map current practices and inform tool use
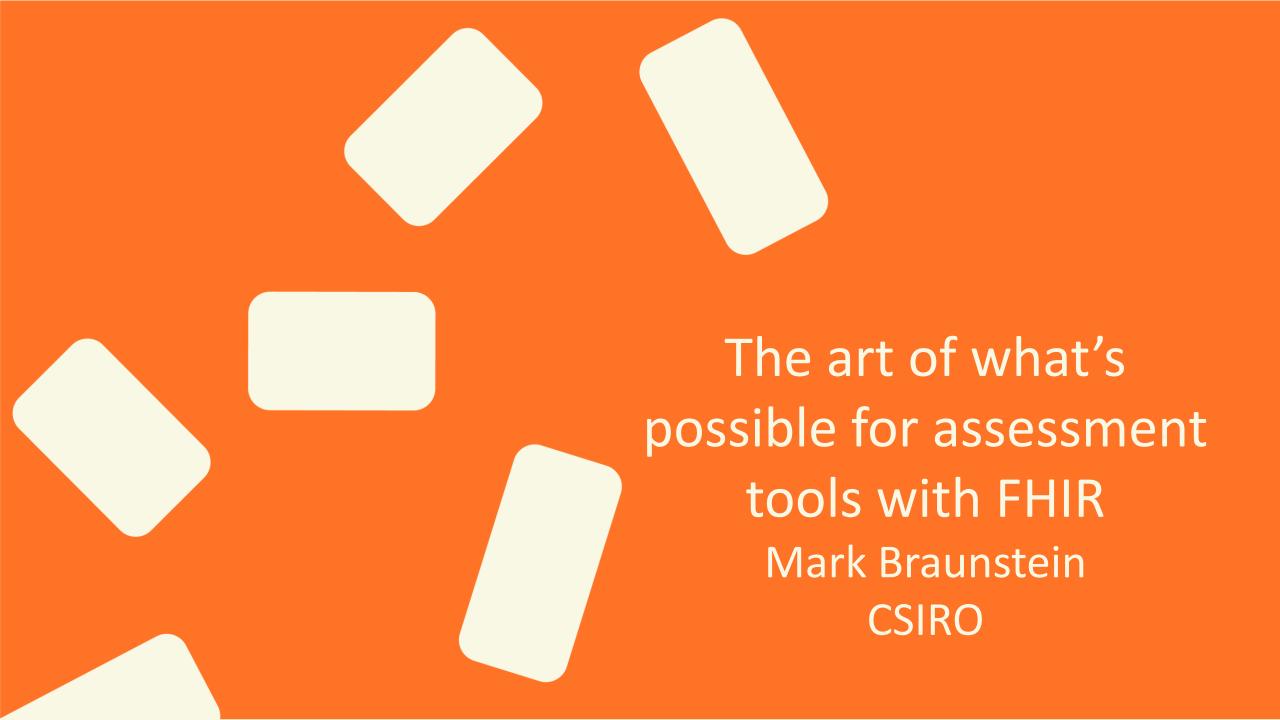
A solution to reduce inefficiencies and improve coordination requires a combined approach

May include a combination of the following:

- Core Outcome Sets (COS) – like those developed by ICHOM and COMET that align with National Minimum Data Sets (NMDS).
- **Data Standards – including for terminology (e.g. SNOMED-CT), data structure and interoperability (e.g. FHIR)**
- Standardised Comprehensive Geriatric Assessment (CGA) templates (that align both with these core sets and with clinical terminology standards)
- Collaborative Assessment Tools – e.g. allowing shared care and joint assessment by multiple clinicians.
- Shared data repositories.
- Improved access to information – for clients and clinicians across health and social care.

*The focus of AUCDI and Sparked

The art of what's possible for assessment tools with FHIR

Mark Braunstein

CSIRO

Clinical Assessment Tools

Diagnostic

Identify the presence or absence of specific conditions or disorders
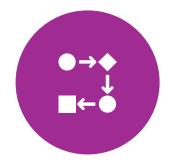
Prognostic

Help predict the likely course of a condition or the probability of a specific outcome

Functional

Evaluate a patient's ability to perform daily activities and tasks

Outcome

Measure the effects of interventions or treatments over time

https://quenza.com/blog/clinical-assessment-tools/

Australian e-Health Research Centre

Potential Benefits

Standardization

A consistent approach to patient evaluation, reducing variability between different healthcare providers and settings

Objectivity

Using validated measures, clinicians can minimize subjective biases in their assessments

Efficiency

Standardized tools can streamline the assessment process saving time while ensuring comprehensive data collection

Quantification

Provide numerical scores or categorical ratings, allowing for precise tracking of changes over time

Evidence-based Practice

The use of validated assessment tools aligns with principles of evidence-based medicine, enhancing the quality of care

https://www.bmj.com/content/312/7023/71
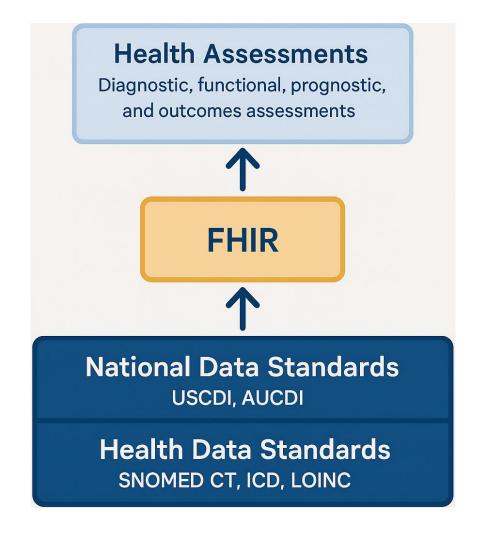
Australian e-Health Research Centre

The Message: Success Rests on Standards
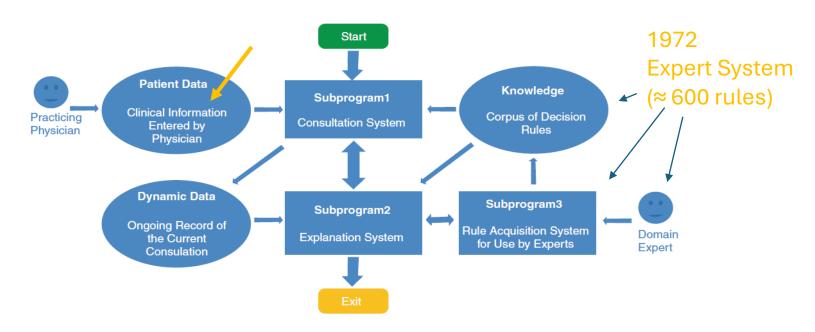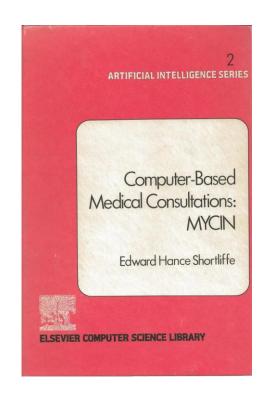
Antibiotic Treatment

Prognostic

Help predict the likely course of a condition or the probability of a specific outcome

1972
Expert System
(≈ 600 rules)

"MYCIN received an acceptability rating of 65% by the [8] evaluators; the corresponding ratings for acceptability of the regimen prescribed by the five faculty specialists ranged from 42.5% to 62.5%".

https://jamanetwork.com/journals/jama/article-abstract/366606

Australian e-Health
Research Centre

Never Used Clinically

Duplicate data entry

Not incorporated into workflow

Concerns about computers practicing medicine
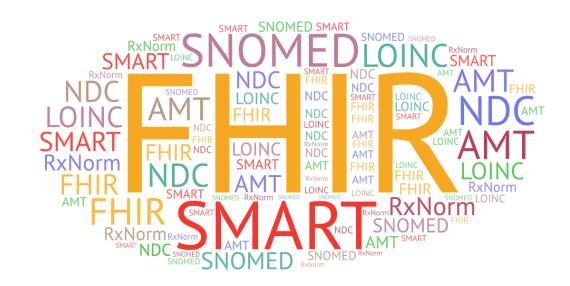
Why FHIR Matters

Predictable Data Model

Integration into Workflow & Process (w/o Duplicate Data Entry)
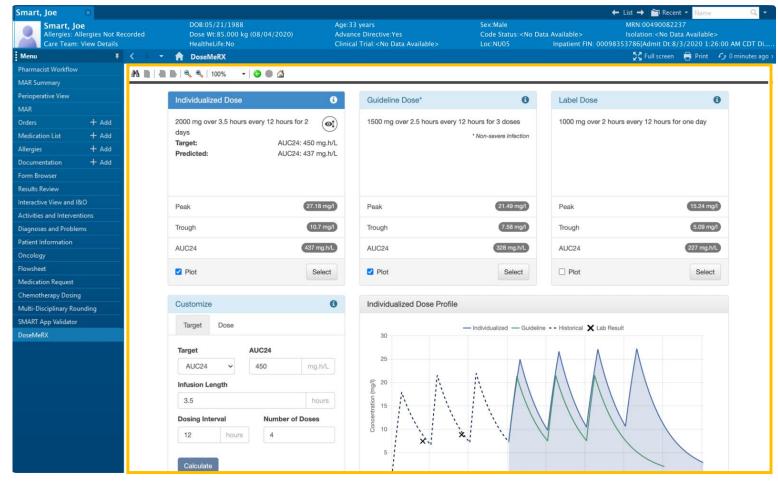
Medication Dosing

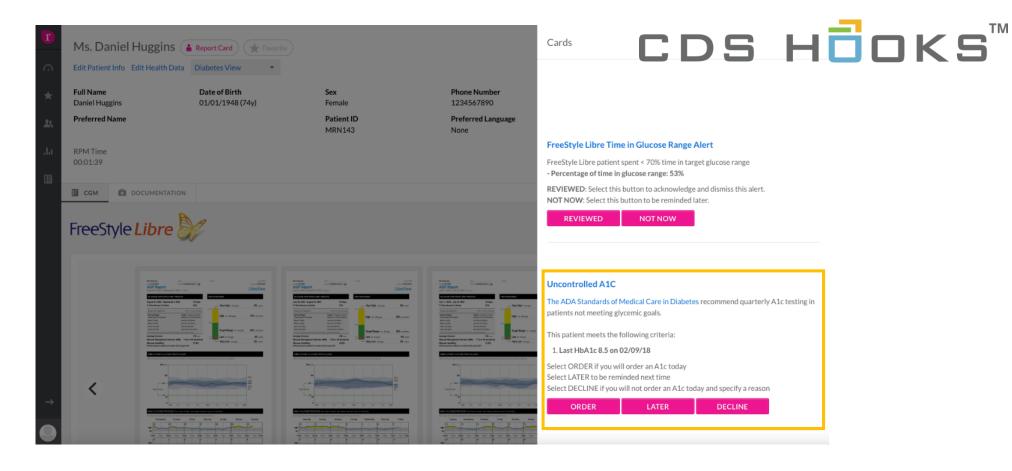**Evidence-based Practice**

The use of validated assessment tools aligns with principles of evidence-based medicine, enhancing the quality of care

Quantification
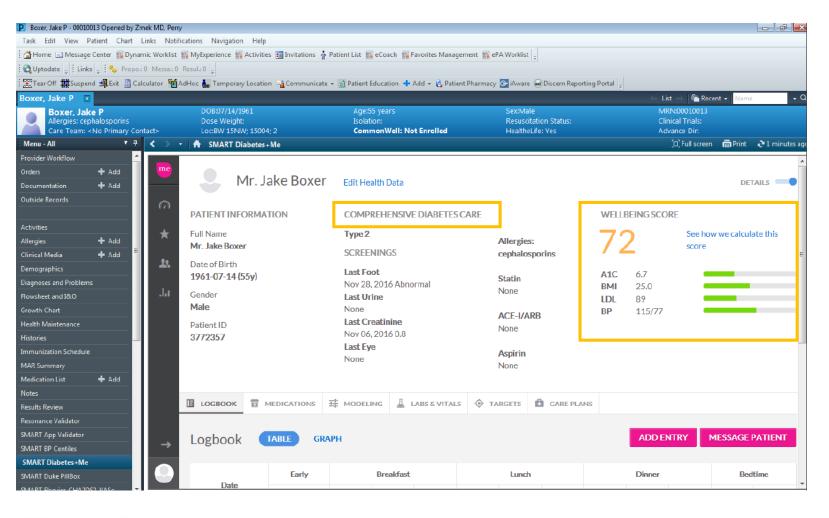
Provide numerical scores or categorical ratings, allowing for precise tracking of changes over time

Chronic Care

Standards Based Clinical Summaries

Facebook's BART developed for summarization, trained on over 300,000 CNN/Daily Mail news articles & Xsum's professionally written one-sentence summaries of them.

Constrained Beam Search exerts control of BART's output to define what must and must not be in the summary. It rejects any terms *found in SNOMED CT* that were *not found* in the chart effectively limiting hallucinations of diagnosis or findings the patient didn't have (*a problem that appeared in testing*).
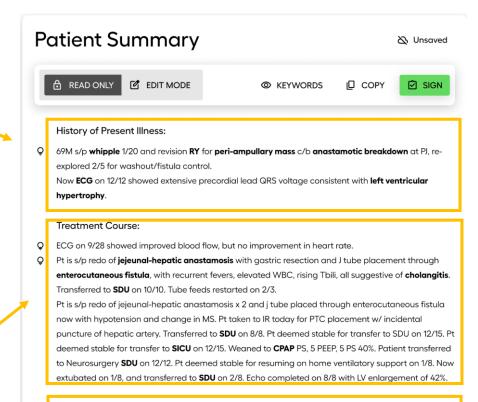
Source	Text
Admission Note	55-year-old male with history of two vessel CAD, ischemic cardiomyopathy, EF 15%, mitral regurgitation, and diabetes on oral agents who presents from OSH s/p VT/VF cardiac arrest...
BART	55-year-old male with history of two vessel CAD, ischemic cardiomyopathy, EF 15%, altered mental status and hypotension, now s/p VT/VF cardiac arrest...
BART constrained	55-year-old male with history of two vessel CAD, ischemic cardiomyopathy, EF 15%, mitral regurgitation, and diabetes who presents from OSH s/p VT/VF cardiac arrest...

Google's BERT, a family of NLP tools, **trained on discharge summaries for 6,600 clinically complex NY Presbyterian Hospital neurology inpatients**, determines what's important.

BERT also identifies follow-on care. Trained on **CLInicalfollowuP (CLIP)** dataset of clinical action items derived from **MIMIC III**, a dataset of over forty thousand critical care patients maintained at MIT.

Patient Summary

🚫 Unsaved

[🔒 READ ONLY] [✏️ EDIT MODE]   [👁 KEYWORDS] [⧉ COPY] [☑ SIGN]

History of Present Illness:

⚲ 69M s/p **whipple** 1/20 and revision **RY** for **peri-ampullary mass** c/b **anastomotic breakdown** at PJ, re-explored 2/5 for washout/fistula control.
Now **ECG** on 12/12 showed extensive precordial lead QRS voltage consistent with **left ventricular hypertrophy**.

Treatment Course:

⚲ ECG on 9/28 showed improved blood flow, but no improvement in heart rate.
⚲ Pt is s/p redo of **jejeunal-hepatic anastomosis** with gastric resection and J tube placement through **enterocutaneous fistula**, with recurrent fevers, elevated WBC, rising Tbili, all suggestive of **cholangitis**. Transferred to **SDU** on 10/10. Tube feeds restarted on 2/3.
Pt is s/p redo of jejeunal-hepatic anastomosis x 2 and j tube placed through enterocutaneous fistula now with hypotension and change in MS. Pt taken to IR today for PTC placement w/ incidental puncture of hepatic artery. Transferred to **SDU** on 8/8. Pt deemed stable for transfer to SDU on 12/15. Pt deemed stable for transfer to **SICU** on 12/15. Weaned to **CPAP** PS, 5 PEEP, 5 PS 40%. Patient transferred to Neurosurgery **SDU** on 12/12. Pt deemed stable for resuming on home ventilatory support on 1/8. Now extubated on 1/8, and transferred to **SDU** on 2/8. Echo completed on 8/8 with LV enlargement of 42%.

Follow-ups:

• Sill follow **UOP**. Likely will need repeat belly scan within next 24h. Follow **LFTs**, white count, temps. F/u **albumin** level weekly to determine nutritional status. Dr was informed of this change at 220 pm 12/18. GI: Repeat **cholangiogram** 12/22, F/u albumin level weekly to determine nutritional status. F/u **pancx** from 2173/12/20. Will discuss need for TPN with primary team. Check chemistry 10 daily and adjust lytes per am labs 5. Action: * **Ostomy RN** consulted; changed fistula dressing; supplies in room, will follow up Friday 12/17. Repositioned q2h, barrier cream applied. Will re- check Also check

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Abstractive Health   SMART on FHIR®©

Validated

Criteria	LLM-generated Mean score (SD)	Likert rating 1-5, No. (%)[a] 1	2	3	4	5	Physician-written Mean score (SD)	Likert rating 1-5, No. (%)[a] 1	2	3	4	5
Completeness	4.00 (0.88)	0	12 (8)	31 (20.7)	69 (46)	38 (25.3)	4.16 (0.84)	0	3 (2)	31 (20.7)	48 (32)	68 (45.3)
Curation	4.24 (0.58)	0	1 (0.7)	13 (8.7)	85 (56.7)	51 (34)	4.76 (0.48)	0	0	6 (4)	39 (26)	105 (70)
Readability	4.00 (0.64)	0	8 (5.3)	17 (11.3)	87 (58)	38 (25.3)	4.64 (0.49)	0	0	5 (3.3)	38 (25.3)	107 (71.3)
Correctness	4.52 (0.64)	0	0	13 (8.7)	39 (26)	98 (65.3)	4.90 (0.39)	0	0	2 (1.3)	12 (8)	136 (90.7)
Usefulness	4.04 (0.86)	0	12 (8)	30 (20)	59 (39.3)	49 (32.7)	4.36 (0.71)	0	5 (3.3)	13 (8.7)	53 (35.3)	79 (52.7)

[a] Likert scores and score distributions over 50 notes for 3 annotators. There are no 1 ratings for either physician or LLM summaries in the 150 evaluation results.

3rd Place, 2024 VA AI Tech Sprint

TECH SPRINT

Australian e-Health
Research Centre

Summary Chatbot

Diagnostic

Identify the presence or absence of specific conditions or disorders

Trend all the labs and vitals in the chart.

Let's analyze the vitals and laboratory findings for King George III:

Pulse Trend

Date	Pulse	Interpretation
December 24, 1810	120 bpm	Tachycardic, likely due to acute agitation
April 20, 1812	70-90 bpm	Within normal physiological range
November 25, 1819	Steady, 75-85 bpm	Stable cardiac function
January 29, 1820	Feeble, estimated 50-60 bpm	Significant decline, bradycardic

Urinalysis Trend

Date	Finding	Interpretation
1820	Dark purple discoloration when left standing	Abnormal urine characteristics

Clinical Observations:

- Progressive decline in pulse quality over a decade
- Significant bradycardia by January 1820

SCROLL TO BOTTOM ↓

How Do They Do It?

Abstractive Health

SMART on FHIR ®©

MedRAG

The pathology of four types of chondrodysplasias, viz., type II
achondrogenesis, thanatophoric dwarfism, Saldino-Noonan syndrome, and
chondrodysplasia punctata were studied. In each of these disorders,
cells with features similar to the chief and dark chondrocytes of

there were focal accumulations of highly abnormal chief and dark cells
with abnormal matrix which contained increased amount of keratan

PubMed corpus consists of 23,898,701 "snippets" like these abstracted from the US
National Library of Medicine's database of more than 38 million citations from the
biomedical literature, life science journals, and online books

Large **Medical** Model

Supply Chain Optimization and Resource Utilization

Synthetic Clinical Trials

Drug Discovery and Development

Personalized Medicine

Clinical Trial Optimization

Medical Imaging and Diagnostics

Claims Processing Automation

Provider Network Design and Performance

Personalized Treatment and Member Engagement

140M	350M	63B	100s
Patient Histories	Parameters	Tokens	of Use Cases

✥ **GenHealth.ai**

LMM: **Standards Based**

Red CMS HIPSS
Dark blue CMS HCPCS
Dark green ICDCM
Light green CPT
Light blue RxNorm
Dark yellow SNOMED CT
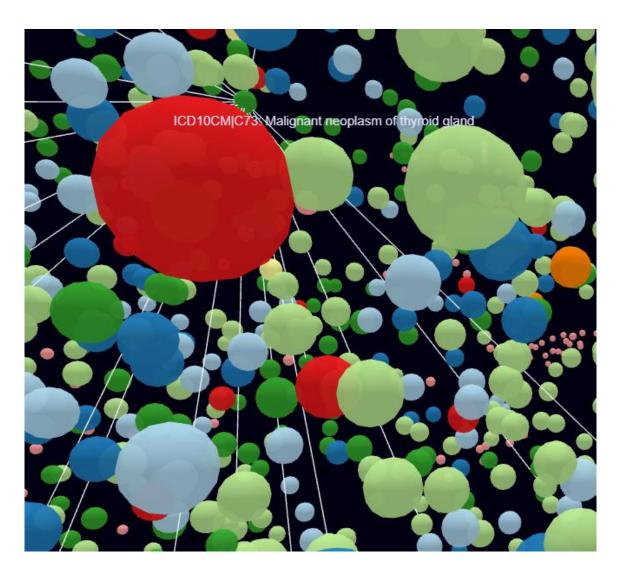
GenHealth.ai

CSIRO — Australian e-Health Research Centre

Prognostic

Help predict the likely course of a condition or the probability of a specific outcome

Something to Think About
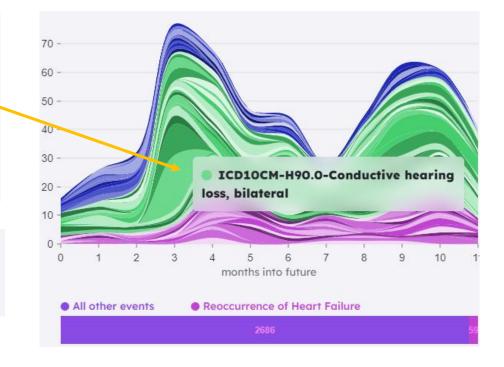
GenHealth prompt: Given a patient who is a 71-year-old female patient with congestive heart failure and a treatment plan beginning with angiotensin receptor blocker (losartan), tell me what conditions, medications, and procedures this patient is likely to experience over the next 12 months. Add probabilities to those events where possible

GenHealth Result: "**The model forecasts a side-effect of the medication Furosemide in older females as hearing loss.** However, there is no clear published research on that outcome.

The model, trained on millions of patients, does show that and may be something for a care team or health plan to look into more before prescribing the medication".

2016 Harvard Study of 54,721 women: "**Thiazide diuretic use and furosemide use were not associated with risk of hearing loss among women with a history of hypertension**".

https://www.amjmed.com/article/S0002-9343(15)01112-2/pdf

ICD10CM-H90.0-Conductive hearing loss, bilateral

months into future

● All other events ● Reoccurrence of Heart Failure

2686

Australian e-Health Research Centre

Workshop 1
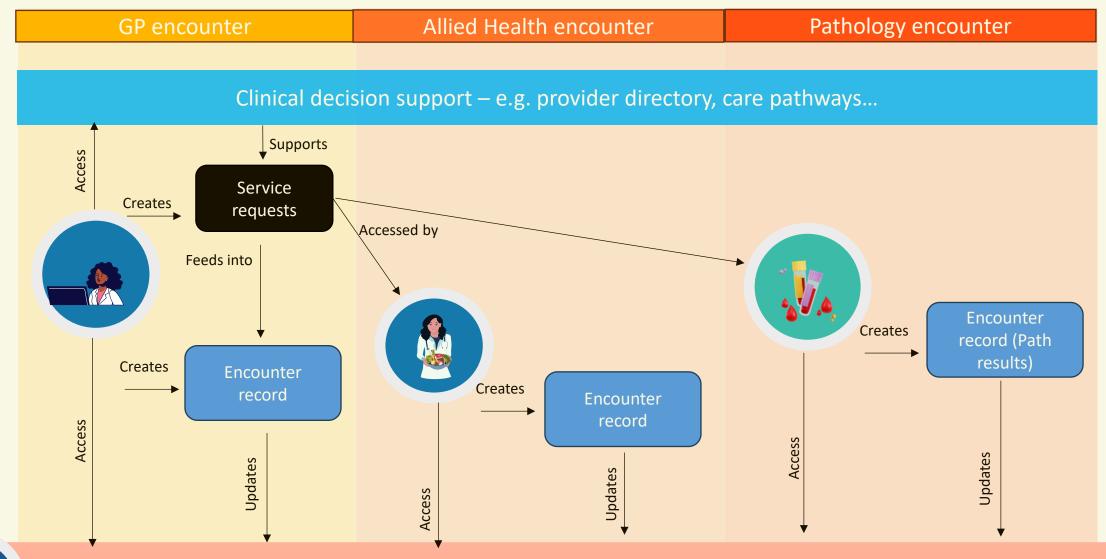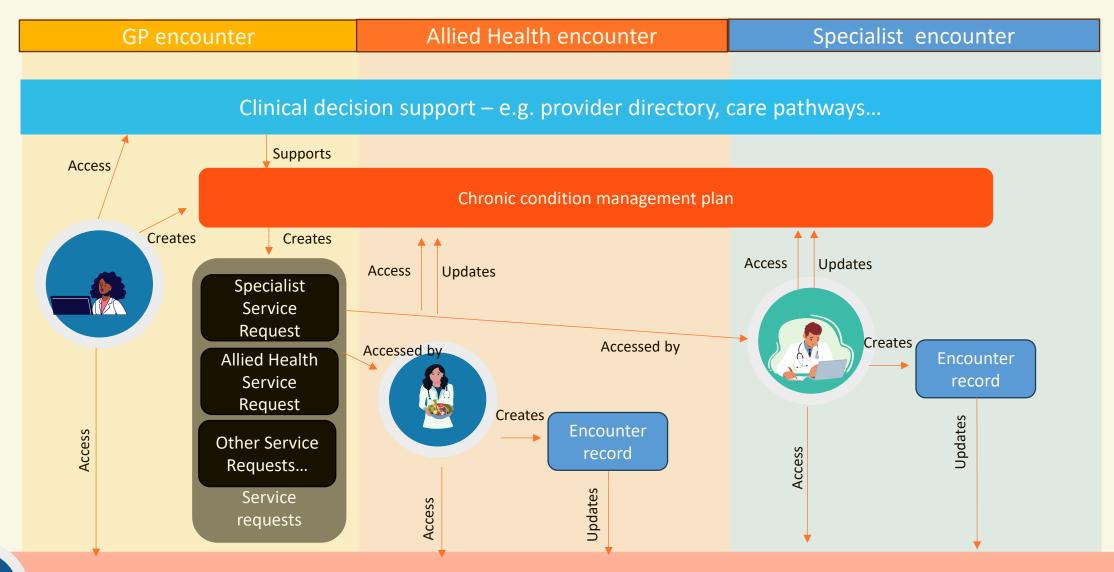
Consumer journey Patient Summary, Service Request and Enconter Record
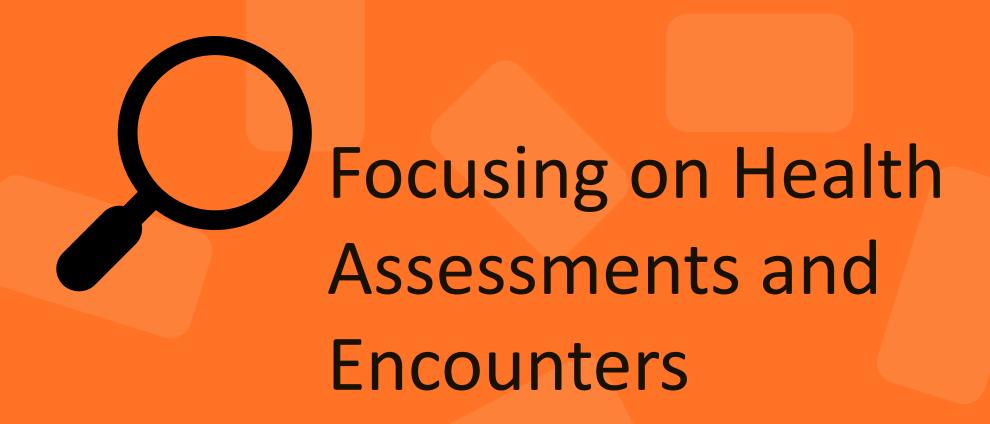
Consumer journey – ecosystem

Focusing on Health Assessments and Encounters

Health assessment information in encounters

Health record data (for use in assessments)	Health assessment forms (HAFs)	Validated health assessment tools (VHATs)
• Structured as data elements within AUCDI data groups • Information/evidence that is collected as part of an encounter in the process of identifying risks or collecting evidence and making clinical judgements during an encounter for use in assessments • Examples: 　• Head circumference measurement 　• Distance able to walk independently/with aid 　• BP	• Health assessment forms and templates requiring completion in the process of delivering care: 　• Clinical care 　• Reporting requirements 　• MBS and funding purposes, etc. • Examples: 　• MBS 715 Health Assessment 　• Comprehensive health assessment plan (CHAP)	• Agreed/formal assessment tools 　• Standardised 　• Validated 　• May contain complex algorithms – risk scales, validated scores 　• Often proprietary • Examples: 　• InterRAI 　• Barthel scale 　• Aus CVD Risk i

Across a life course

Across the health continuum (preventative, acute, chronic)

Across the health ecosystem (all domains, private/public, primary to population health)

Spa

HL7 FHIR

Menti

DRAFT Maturity model for data supporting HAs

Progressive layers		AUCDI data entry, use and re-use, data quality	AU FHIR data exchange and data access
Level 1	Narrative	Narrative, free text information conveying data supporting health assessment tool information May include name of assessment tools, completion information, score information , findings, etc.	
Level 2	Operational	A simple data group with coded representations of the HAFs and HATs used in clinical encounters e.g. 273302005|Barthel index|, MBS 715	Simple forms represented in FHIR as a questionnaire with no SDC support, CDS, etc. No use of AU Core
Level 3	Machine readable	Data groups (and data elements) to represent the information collected using HAs e.g. head circumference, length (for growth charts)	AU FHIR profiles representing the information collected using HAs
Level 4	Executable and interoperable	Representations of specific HAFs and HATs as data models e.g. AUDIT-C, MBS 715 Defined algorithms and business rules for how to aggregate/categorise data to be used in assessment tool	FHIR IG representations of specific health assessment tools that leverage SDC, AUCDI and AU Core and other national profiles (e.g. AU PS)
Level 5	Dynamic		FHIR IG representations of specific health assessment tools that leverage SDC, AUCDI and AU Core AND Clinical Practice Guidelines (CPG FHIR IG), AND/OR CQM

CONCEPTUAL

DRAFT Maturity model for data supporting HAs

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Level 3	Machine readable	Data groups (and data elements) to represent the information collected using HAs e.g. head circumference, length (for growth charts)	AU FHIR profiles representing the information collected using HAs
Level 4	Executable and interoperable	Representations of specific HAFs and HATs as data models e.g. AUDIT-C, MBS 715 Defined algorithms and business rules for how to aggregate/categorise data to be used in assessment tool	FHIR IG representations of specific health assessment tools that leverage SDC, AUCDI and AU Core and other national profiles (e... e.g. MBS 715 FHIR IG allowing pre-population and post-population of data
Level 5	Dynamic		FHIR IG representations of specific health assessment tools that leverage SDC, AUCDI and AU Core AND Clinical Practice Guidelines (CPG FHIR IG), AND/OR CQM e.g. MBS 715 FHIR IG with cardiovascular risk calculation

CONCEPTUAL

AUCDI Focus - DRAFT Maturity model for data supporting HAs

Progressive layers	AUCDI data entry, use and re-use, data quality
Level 1 — Narrative	Narrative, free text information conveying data supporting HAT information May include name of HAT, completion information, score information , findings, etc.
Level 2 — Simple coded representation of HAF/HAT name	A simple data group with coded representations of the HAFs and HATs used in clinical encounters e.g. 273302005|Barthel index|, MBS 715
Level 3 — Data groups representing information collected using HAFs and HATs	Data groups (and data elements) to represent the information collected using HAs
Level 4 — Specific HAFs and HATs represented as data models	Representations of specific HAFs and HATs a... MBS 715 Defined algorithms and business rules for how... to be used in assessme...
Level 5	

Thoughts?

CONCEPTUAL

Menti

AUCDI R3
supporting Health
Assessments

Sparked: AUCDI

Start with "core of the core"
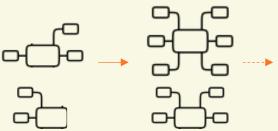
Start small and grow iteratively

- No simple "undo" – impact of change can be high
- Data elements can be added to over time
  - Work through backlog
  - Add more use cases
  - More functionality available

R1   R1.x

Stick with our design principles

Align and leverage work internationally were possible

- Where we differ, need to understand the impact

"From little things, big things grow"

Sparked
HL7 FHIR

Core Principles of Data Set Design

1 Reduce duplication - Single entry, single development (multiple use and reuse)

2 Supports person-centred care - driven by a clinical quality and safety use case

3 No data for data's sake

4 Driven by primary clinical data use not secondary data use needs

5 Supports best practice care, clinical guidelines and clinician workflow

6 Systems can support now or with minimal effort, supporting a strategic roadmap with an agile iterative process

7 Alignment with national health data standards and initiatives

8 Alignment with international standards and initiatives

9 Involve and consider all healthcare domains and care modalities

Sparked
HL7 FHIR

Health assessment information in encounters

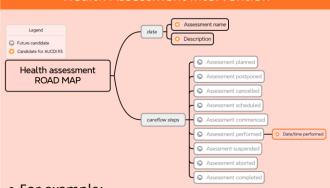| Health record data (for use in assessments)	Health assessment forms (HAFs)	Validated health assessment tools (VHATs)

• Structured as data elements within AUCDI data groups
• Information/evidence that is collected as part of an encounter in the process of identifying risks or collecting evidence and making clinical judgements during an encounter for use in assessments
• Examples:
  • Head circumference measurement
  • Distance able to walk independently/with aid
  • BP
	• Health assessment forms and templates requiring completion in the process of delivering care:
	  • Clinical care
	  • Reporting requirements
	  • MBS and funding purposes, etc.
	• Examples:
	  • MBS 715 Health Assessment
	  • Comprehensive health assessment plan (CHAP)
		• Agreed/formal assessment tools
		  • Standardised
		  • Validated
		  • May contain complex algorithms – risk scales, validated scores
		  • Often proprietary
		• Examples:
		  • InterRAI
		  • Barthel scale
		  • Aus CVD Risk i

Across a life course

Across the health continuum (preventative, acute, chronic)

Across the health ecosystem (all domains, private/public, primary to population health)

Data groups to support HAs in encounters

Health assessments (HA)

A Data GROUP used to track the status of each Health Assessment intervention

Legend
- Future candidate
- Candidate for AUCDI R3

Health assessment ROAD MAP

data
- Assessment name
- Description

careflow steps
- Assessment planned
- Assessment postponed
- Assessment cancelled
- Assessment scheduled
- Assessment commenced
- Assessment performed — Date/time performed
- Asessment suspended
- Assessment aborted
- Assessment completed

- For example:
  - MBS 715 assessment
  - Diabetic foot check
  - Oxford Knee score (scheduled 6/52 post op)
- Similar to AUCDI R2 Intervention family of data groups (Procedure, Vaccination, Health education)

Reusable data GROUPS to capture health record data for use in assessments

- Often captured as part of routine clinical care
- Examples:
  - Weight
  - Height
  - Head circumference measurement
  - Distance able to walk independently/with aid
  - Blood pressure
  - Medication statement (confirming use of statin)
  - Activity of daily living summary

A Data GROUP for each simple assessment tool

- 1:1, one data group per assessment tool
- Usually triggered at a specific point in time, for a specific purpose
- Types:
  - Scores and scales
  - PROMS and PREMS
  - Questionnaires
- Features
  - Standardised, Validated, Known algorithms
  - Auto populated from EHR evidence where possible
- Examples:
  - Barthel index
  - AU CVD Risk
  - AUDIT-C
  - EQ-5D (EuroQol-5 Dimensions)
  - Oxford Knee score
  - AHPEQS (Australian Hospital Patient Experience Question Set)

Across a life course

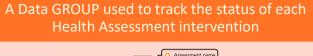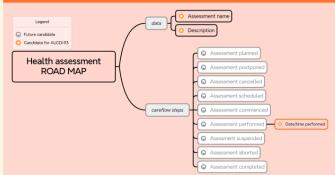Across the health continuum (preventative, acute, chronic)

Across the health ecosystem (all domains, private/public, primary to population health)

Sparked
HL7 FHIR

Proposal for AUCDI R3:
Data groups to support HAs in encounters

Health assessments (HA)

A Data GROUP used to track the status of each Health Assessment intervention

Include in AUCDI R3
(start with completed and then can be extended in future releases to support other careflow steps (e.g. scheduled, planned)

Reusable data GROUPS to capture health record data for use in assessments

- Often captured as part of routine clinical care
- Examples:
  - Weight, height, head circumference measurements, Distance able to walk independently/with aid, Blood pressure, Activity of daily living summary

Include in AUCDI R3+
- Agree initial scope for R3 based on priorities from CDG workshops

Provides some scope

A Data GROUP for each simple assessment tool

- 1:1, one data group per assessment tool
- Features
  - Standardised, Validated, Known algorithms
  - Auto populated from EHR evidence where possible
- Examples:
  - Barthel Index, AU CVD risk, AUDIT-C, EQ-5D, Oxford Knee score, AHPEQS

Backlog for future AUCDI

Across a life course

Across the health continuum (preventative, acute, chronic)

Across the health ecosystem (all domains, private/public, primary to population health)

Workshop overview

- Health assessment data
  - Workshop 1
    - Discuss the proposed **approach to AUCDI R3** for health assessment data
   - Understanding the **priority focus areas** for data supporting health assessments (including scores and scales)

  - Workshop 2
    - Understanding the **priority data groups** for inclusion in AUCDI R3 – what should we work on first?

Workshop 1: Approach to Health Assessment in AUCDI R3

- Overview
  - Understanding the approach to modelling health assessment data for AUCDI
  - Understanding the priority focus areas for data supporting health assessments (including scores and scales)
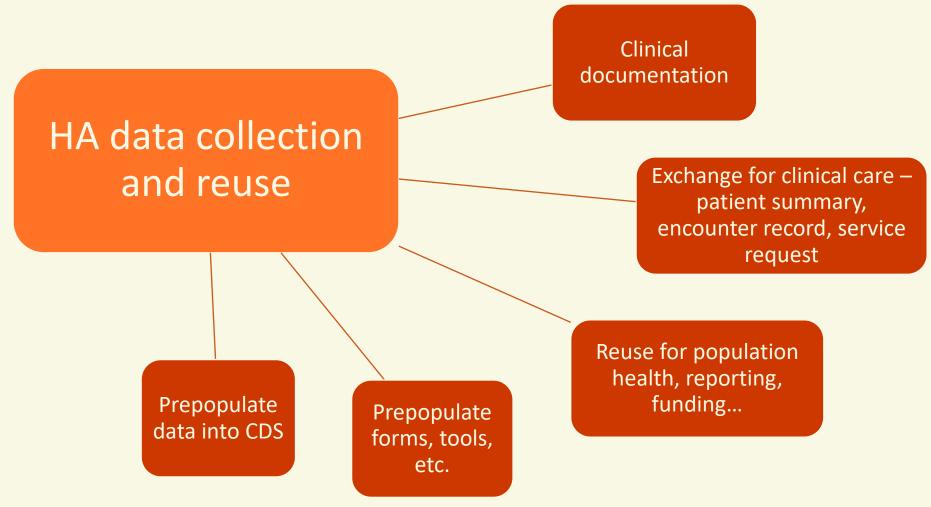
- Objective
  - Agree the approach to modelling health assessment data for AUCDI R3
  - Agree priority focus areas for AUCDI R3 and health assessment data in an encounter
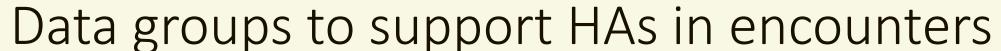
AUCDI: HA data collection and reuse

HA data collection and reuse

Clinical documentation

Exchange for clinical care – patient summary, encounter record, service request

Reuse for population health, reporting, funding…

Prepopulate data into CDS

Prepopulate forms, tools, etc.

Proposal for AUCDI R3:
Data groups to support HAs in encounters

Health assessments (HA)

A Data GROUP to capture the HA name and its completion state	Reusable data GROUPS to capture underlying evidence in an EHR	A Data GROUP for each simple assessment tool

• Similar to other Intervention data groups (Procedure, Immunisation, Health education)	• Often captured as part of routine clinical care
	• Examples:
	  • Weight, height, head circumference measurements, Distance able to walk independently/with aid, Blood pressure, Activity of daily living summary
		• 1:1, one data group per assessment tool
		• Features
		  • Standardised, Validated, Known algorithms
		  • Auto populated from EHR evidence where possible
		• Examples:
		  • Barthel Index, AU CVD risk, AUDIT-C, EQ-5D, Oxford Knee score, AHPEQS

Include in AUCDI R3
(this can be extended in future releases to support other care flow steps (e.g. planning)

Include in AUCDI R3+
- Agree initial scope for R3 based on priorities from CDG workshops

Provides some scope

Backlog for future AUCDI

Across a life course

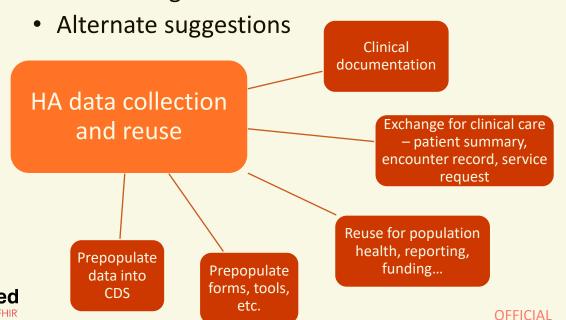Across the health continuum (preventative, acute, chronic)

Across the health ecosystem (all domains, private/public, primary to population health)
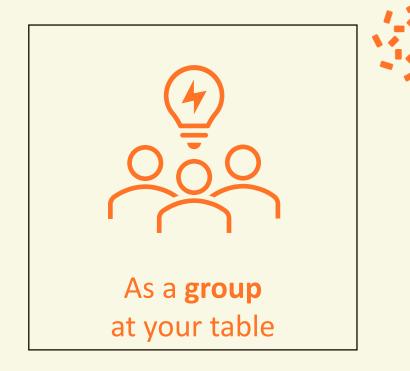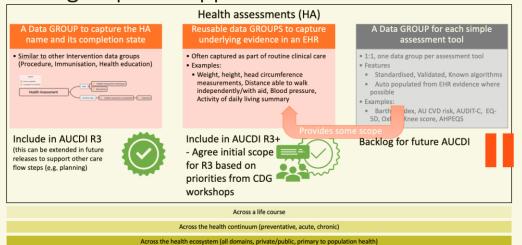
Sparked
HL7 FHIR

Workshop 1: Activity 1

- Discuss the proposed approach for HA data for AUCDI R3

- As a group, discuss
  - Benefits of this approach
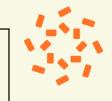 - Risks of this approach
  - Other things we need to consider
  - Alternate suggestions

As a **group**
at your table

Clinical documentation

HA data collection and reuse

Exchange for clinical care – patient summary, encounter record, service request

Reuse for population health, reporting, funding…

Prepopulate data into CDS

Prepopulate forms, tools, etc.

Proposal for AUCDI R3:
Data groups to support HAs in encounters

Health assessments (HA)

A Data GROUP to capture the HA name and its completion state

- Similar to other Intervention data groups (Procedure, Immunisation, Health education)

Health Assessment

Include in AUCDI R3
(this can be extended in future releases to support other care flow steps (e.g. planning)

Reusable data GROUPS to capture underlying evidence in an EHR

- Often captured as part of routine clinical care
- Examples:
  - Weight, height, head circumference measurements, Distance able to walk independently/with aid, Blood pressure, Activity of daily living summary

Include in AUCDI R3+
- Agree initial scope for R3 based on priorities from CDG workshops

A Data GROUP for each simple assessment tool

- 1:1, one data group per assessment tool
- Features
  - Standardised, Validated, Known algorithms
  - Auto populated from EHR evidence where possible
- Examples:
  - Barthel index, AU CVD risk, AUDIT-C, EQ-5D, Oxford Knee score, AHPEQS

Provides some scope

Backlog for future AUCDI

Across a life course

Across the health continuum (preventative, acute, chronic)

Across the health ecosystem (all domains, private/public, primary to population health)

Workshop 1: Activity 2

- Discuss what are the priority focus areas for the use of Health Assessment information in an encounter to drive the scoping of AUCDI R3
- Discuss
  - Focus/priority
    - Child development, Daily clinical care, statutory reporting, national KPIs, comprehensive assessments, mental health assessments, clinical observations etc.
  - Settings
    - Aged care, primary care, inpatient care, post-op, etc.
  - Life course stage
    - Paediatric, Adult, Geriatric, General, etc.
  - Why is this a priority for AUCDI R3? How can the data be re-used?

As a **group**
at your table

Sparked
HL7 FHIR

Sharing time!
(30 min)

Sparked
🔥 HL7 FHIR

Menti
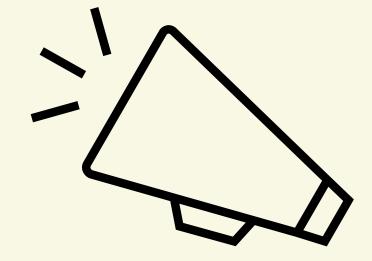
Back at 1:45pm

Lunch

Agreed focus areas

1.

2.

Sparked
HL7 FHIR

Workshop 2: Prioritisation of Health assessment data for AUCDI R3

- Objectives
  - Understanding the priority data groups for inclusion in AUCDI R3 – what should we work on first based on the priority focus areas agreed in the previous workshop

Workshop 2: Prioritisation of Health assessment data for AUCDI R3

- Identify the priority data groups for inclusion in AUCDI R3 based on the results of Workshop 1
- Discuss
  - For each of the prioritised focus areas, identify
    - Priority data groups (and data elements)
    - How is the data currently recorded in systems?
    - How is the data currently reused? What are the opportunities for reuse?
    - Examples of tools or forms used that currently collect this data
    - Who we should be involved – individuals (feel free to self-nominate!) and/or groups

As a **group**
at your table

Sparked
HL7 FHIR

Sharing time!
(30 min)

Sparked
HL7 FHIR

Menti

Back at 3:30pm

Afternoon tea

AUCDI R3

Community pitch time!

Workshop 3: Prioritise backlog for AUCDI R3

- Overview: Discuss and understand community identified priority items for backlog to be included in AUCDI R3.

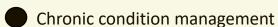- Objective: Identify the high priority items to be included in AUCDI to inform the workplan for AUCDI R3.

Scope of AUCDI with use cases
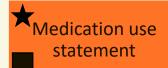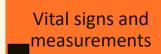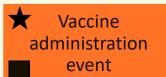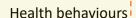
Scope of AUCDI Release 2 (part 1/2)

Problem/Diagnosis
- Problem/diagnosis name
- Body site/laterality
- Date/time of onset
- Date/time of resolution
- Status
- Comment
- Last updated

Adverse reaction risk summary
- Substance name
- Date/time of onset of first reaction
- Manifestation/s
- Severity of reaction
- Comment
- Last updated

Sex and Gender Summary
- Sex assigned at birth
- Gender identity
- Pronouns
- Last updated

Medication use statement
- Medication name
- Form
- Strength
- Route of administration
- Dose amount and timing
- Clinical indication
- Comment
- Date of assertion

Vital signs*
- Blood pressure
  - Systolic
  - Diastolic
- Pulse
  - Rate
- Body temperature
- Respiration
  - Rate

Measurements*
- Height/length
- Body weight
- Waist circumference

Procedure completed
- Procedure name
- Description
- Body site/laterality
- Clinical indication
- Date performed
- Comment

Psychosocial therapy
- Therapy type
- Description
- Date/time provided

Physical assistance
- Assistance type
- Description
- Date/time provided

Biomarkers*
- HDL
- LDL
- Total Cholesterol
- Triglycerides
- HbA1c
- eGFR
- uACR

Vaccination administered event
- Vaccine name
- Sequence number
- Date of Administration
- Comment

Health education
- Education topic
- Description
- Date/time provided

Medical equipment supply
- Equipment type
- Description
- Date/time provided

Encounter – clinical context
- Reason for encounter
- Modality

Pregnancy assertion
- Pregnancy assertion
- Justification
- Date of assertion

Last Menstrual Period assertion
- Date of onset
- Certainty
- Date of assertion

Estimated date of delivery summary
- EDD by cycle
- EDD by ultrasound
  - Date of ultrasound
  - Gestation by scan
- Last update

Sparked
HL7 FHIR

Scope of AUCDI Release 2 (part 2/2)

Goals
- Goal name
- Description
- Clinical indication
- Initiator role
- Initiator
- Start date
- Proposed end date
- Actual end date
- Outcome
- Comment
- Last updated

Health Issue
- Issue name
- Description
- Date of onset
- Last updated

Service request (generic)
- Service name
- Clinical indication
- Clinical context
- Urgency
- Service due
- Comment
- Distribution list
- Urgent contact
- Billing guidance

Alcohol consumption summary
- Overall status
- Overall comment
- Last update

Substance use summary
- Substance name
- Overall status
- Overall comment
- Last update

Tobacco smoking summary
- Overall Status
- Last updated
- Type
  - Status
  - Typical use
  - Comment
- Overall quit date
- Overall years of smoking
- Overall pack years
- Overall comment

Housing summary
- Overview
- Housing stability status
- Last updated

Living arrangement summary
- Overview
- Last updated

Occupation summary
- Overview
- Employment status
- Last updated

Physical activity summary
- Overview
- Last updated

Education summary
- Overview
- Highest level completed
- Last updated

Financial summary
- Overview
- Financial stability status
- Last updated

Food and nutrition summary
- Overview
- Food security status
- Last updated

Sparked
HL7 FHIR

Backlog– new data elements identified for existing AUCDI data groups

Adverse Reaction Risk Summary
Adverse reaction status
Clinical management description
Clinical status
Clinical verification
Confirmation of attestation of allergy
Criticality
Date exposed to substance
Dose/frequency and form
Initial exposure
Method of diagnosis/Clinical evidence
Onset of most severe reaction
Onset of last reaction
Duration of reaction
Onset related to clinically relevant date
Onset of initial exposure
Duration of exposure
Patient must avoid statement
Reaction mechanism
~~Severity~~
Status
Timing and duration of exposure
Type/Category
Type of reaction
Verification status
reaction event
- Date of manifestation
- Dosage
- Formulation and strength
- De labelling
- Time/timing exposure to
Adverse reaction – authoring clinician
Immunogenic testing

Alcohol Consumption Summary
Binging
Frequency

Blood pressure
Location of measurement
Mean arterial pressure
Method (of measurement)
Position
Ambulatory, acute (exceptional)

Body Temperature
Body temperature
- Comment
- Location of measurement

Body Weight
Device

~~Education summary~~

Encounter
~~Reason for encounter~~
~~Modality~~
Location/s
Outcome
Comment

~~Estimated Date of Delivery Summary (EDD)~~

~~Estimated Glomerular Filtration Rate eGFR~~

Financial summary
Finance
Income
Social economic (?)
~~Financial stability~~
Financial strain
Financial eligibility

Food and nutrition summary
Current diet status
Appetite
Diet restrictions/requirements
Diet
~~Food security~~
Nutritional status
Food source
24-hour food recall

Goal
Attestor
Steps to achieve goal
~~Owner/Initiator~~
~~Initiator role~~
Frequency
Function impact
Measurable time frame/SMART
Preventative nutrition goals
Relevant supports
Date of review
Other parties

~~Haemoglobin HbA1c~~

~~Health Education~~

Health Issue
Issue type (physical, mental, psychological)
Issue status
Health concern/consideration
Date of resolution/closure

Housing summary
Housing
~~Housing stability status~~
Rurality

Last Menstrual Period (LMP)
~~Last menstrual period~~
Menstrual status

Lipids
LDL formula
Lipoprotein (a)
TC:HDL ratio

Living Arrangements
Household
Residential setting

~~Medical equipment supply~~

Medication use statement
Administration aid
Endpoint
Episode type
First prescribed date/Medication start date
Identify medications used in combination
Infusion - related data
Last administration
Medication Details
Medication details
Medication History concepts
Preferred brand
Regular medication indicator
Status for changes
Reason for prescribing
Regular medication

Physical activity summary
Exercise tolerance
Summary data from medical device

~~Physical assistance~~

~~Pregnancy assertion~~

Occupation summary
Occupation duties
Occupation exposure

Data groups or elements that appear with a strikethrough indicate they have been completed

Backlog– new data elements identified for existing AUCDI data groups

Procedure
~~Description~~
Intent
Total duration
Location performed
Procedure status

Problem/Diagnosis summary
Aetiology
Cause
Course description
Clinical description
Date/time clinically recognised
Date/time of onset
Date/time of resolution
Diagnostic certainty
Discharge Diagnosis/Diagnosis type
Impact
Method of diagnosis/Clinical evidence
Manifestation
Practitioner role that confirmed the diagnosis
Qualifiers
Resolution phase
Sensory Impairment
Pain Assessment
Severity
Staging/grading
Type (comorbidity/complication)
Evaluation results
Structured body site
Variant
Specific details
Comment

~~Psychosocial therapy~~

Pulse
Body site
Method (of measurement)
Regularity
Rhythm

Respiration
Body position

Sex and Gender
Sex parameter for clinical use

~~Substance use summary~~

Tobacco smoking summary
Amount
Cessation
Cigarette smoking
Comment
Daily smoking started
Frequency
~~Overall pack years~~
Pattern
Previous episodes of use
~~Quit date~~
Regular smoking started

~~Urine albumin-creatine ration (uACR)~~

Vaccination
Batch Number
Body site
Route of administration
Target disease
Vaccine serial ID

~~Waist circumference~~

Sparked
HL7 FHIR

Data groups or elements that appear with a strikethrough indicate they have been completed

Backlog– new data groups and data elements not yet in AUCDI

About me

Advanced care directive

Adverse event

Alternative care (e.g. bush meds)

Assistive technologies and tools summary

Audit-C

Biomarkers
Creatinine - clearance and serum levels
ECG
Full blood examination/count
Liver function tests
Fasting insulin
Blood glucose
Folate/B12
Iron studies
Microbiota markers
Nutrigenomics
Thyroid function
Vitamin D

Birth summary
Place of birth

Cancer staging

Care pathways

Care plan
Care plan summary

Care team members
Name
Organisation
Role
Contact
CC option

Child & adolescent health

Clinical evidence

Clinical synopsis
Author
Summary (free text)

Clinician alerts

Communication capability*
Languages spoken
Interpreter required

Contraindication

Culture
Cultural burden
Connection/Disconnection
Strength based behaviours
Cultural security

Device
Date of expiry
Date of insertion
Date of removal
Unique Device Identifier
Device type name
Device/details
Procedure specific attributes

Diagnostic test results
Arterial blood gases
Cardiac imagery
Colonoscopy
ECG
Full blood examination
Gastroscopy
Genetic/genomic test results
Imaging results
Imaging test results – echocardiography
Path test results
Path test results – histology
Spirometry

Drug interactions

Ethnicity
Aboriginal and Torres Strait Islander status

Falls risk

Family history

Functional and manual therapies

Functional status and disability assessment
Activities of daily living
Barthel's Index
Cognitive capacity
Functional Independence Measure (FIM)
Mini Mental Status Examination
Montreal Cognitive Assessment

Gambling summary

Genetic/genomic test results
Genetics
Epigenetics

Health Interventions
Assistive device fitting
Outcome/effectiveness
Interventionn context

Health equity summary
Access of care
Distance from care
Health literacy/numeracy

Sparked
HL7 FHIR

Backlog– new data groups and data elements not yet in AUCDI

Health risk assessment
Aspiration risk
Falls risk
Wound care

Imaging completed

Imaging results

Implanted medical devices summary

Informed Consent

Instrumental Activities of Daily Living (IADLs)

Medication order

Medication summary

Migration History

Neighbourhood/environment

Nicotine

Obstetric summary
Gravidity/Parity

Oral health

Personal Information
Participation capability

Personal safety summary
Childhood trauma
History of DFSV - perpetrator
History of DFSV - survivor
Domestic violence

Pregnancy
Examinations
Progress
Risk (level)
Start of pregnancy

Pregnancy Status?
Careflow steps

Pregnancy summary

PREMs and PROMS

Preventative care

Pathology results

Product errors

Pulse oximetry
FiO2
SpO2

Racism

Readiness for change
Motivation for use

Recommendation

Smokeless Tobacco

Social context
Responsibilities
Interaction with justice

Screening activity completed

Sexual characteristics

Sexual health summary*

Shock index

Side effect register

Social network
Carer
Next of Kin
Relationships
Social Supportive Network

Specialist services

Support person needs

Symptom/sign

Transport summary
Transport access

Vaping summary

Vital status

Sparked
HL7 FHIR

Backlog– new data groups and data elements not yet in AUCDI

Vital signs
Blood glucose
Heartbeat
Oxygen saturation
Peak expiratory flow rate (PEFR)

Women's Health

Sparked
HL7 FHIR

Community pitches for AUCDI R3

| Pitch	Details
Device	Unique Device Identifier (UDI) Body Site Date of Implantation Date of Revision
Procedure addition	Clinical outcome
About me	Disability Identifier Cultural information Sexual orientation Gender identity
Vaping summary	Overall status
Adverse risk summary additions	Verification status Criticality Date/time onset of last reaction Specific substance Reaction onset time Clinical management description
Heart rhythm	Heart rhythm Date of measurement
Head circumference	Head circumference Date of measurement
Blood pressure addition	Body position

Sparked
HL7 FHIR

Medical Devices
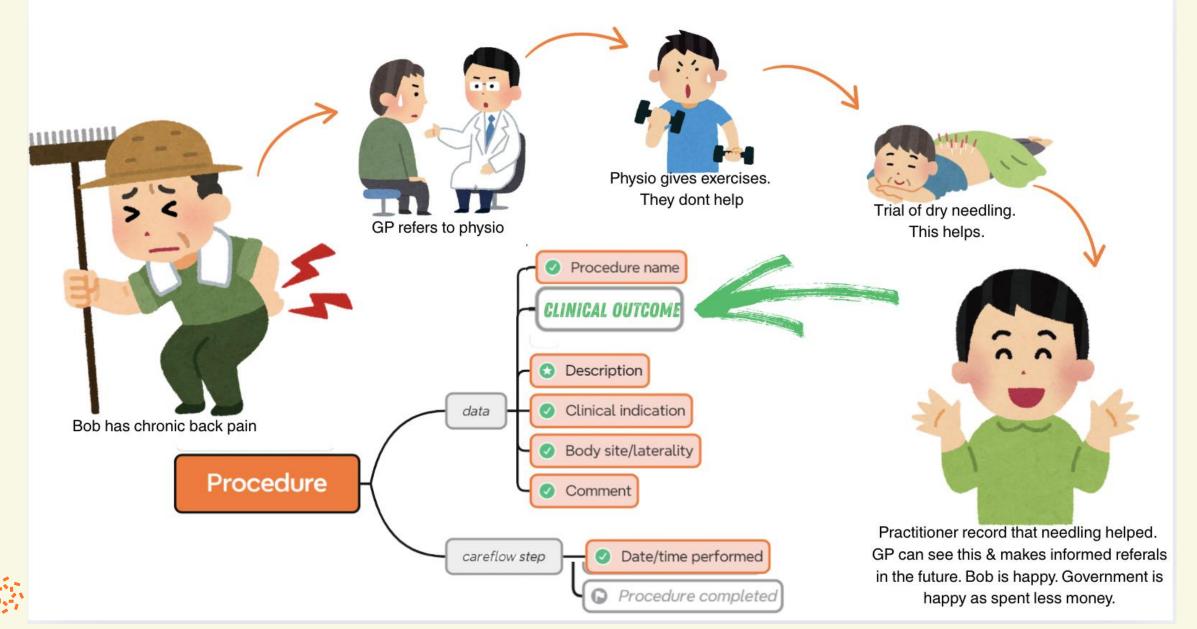
Data group	Device
Data elements	Unique Device Identifier (UDI), Body Site, Date of Implantation, Date of Revision.
Why?	To support the availability of device data for IMPLANTED MEDICAL DEVICES as part of the patient/consumer journey, lessening the reliance on the Patient Implant Card. The availability of the UDI in patient records will ensure that accurate data is available as reference during care processes such as the referral for and completion of Medical Imaging. The UDI will also help with the inclusion of implants in patient summaries and support future improvements in the reporting of adverse events (contained in legislation) and support any related necessity to contact patients/consumers related to product revision or recall.
What is the impact?	Addressing this would support clinical safety, improve access to accurate clinical documentation by patients and healthcare providers and enable future decisions on medical devices. It supports the requirements for mandatory reporting of adverse events, managing device recalls, clinical quality registries and industry reimbursement.
Why now?	Work on device identification was unable to proceed in part while the TGA was defining the UDI system. With amendment to the Therapeutic Goods Legislation Amendment (Australian Unique Device Identification Database and Other Measures) Regulations 2025, the approach for identification of these products and associated device data is established and we can proceed with this valuable work. With the UDI clinicians can access device specific information such as MRI compatibility, sterilization status and sterilization methods, clinical size, device Production Information such as Batch Number, Lot Number, Manufacture / Expiry Date and the approval to supply (ARTG ID). The TGA is planning to have this device information available vias an API call to the TGA's UDI database using the UDI as the key.
Presenter	Cath Koetz – Australian Digital Health Agency (with support from the TGA)

GP refers to physio

Physio gives exercises. They dont help

Trial of dry needling. This helps.

Bob has chronic back pain

Procedure

data
- ✓ Procedure name
- CLINICAL OUTCOME
- ★ Description
- ✓ Clinical indication
- ✓ Body site/laterality
- ✓ Comment

careflow step
- ✓ Date/time performed
- ▶ Procedure completed

Practitioner record that needling helped. GP can see this & makes informed referals in the future. Bob is happy. Government is happy as spent less money.

PROCEDURE GROUP   CLINICAL OUTCOME DATA ELEMENT

New Data Element	• **Clinical Outcome –** What was the clinical outcome of the procedure? Was it effective?
Why?	**1. Repeat interventions without clinical improvement represent a significant financial burden on health systems**. (1,2) • Recording outcomes avoids resource duplication. **2**. Chronic health conditions are **multifactorial, requiring multidisciplinary care**. • 2 patients, same diagnosis, varying function & environmental supports = **varying response to treatment**. • Ongoing improvement & functioning = understanding the impact of procedures. • **Care is person-centred**. Providing a healthy eating plan does not guarantee healthy eating. **3**. Procedures often conducted by specialists/allied health. Data must be shared back to GP to drive **future decision-making**. **4**. Outcomes can't always be measured by lab tests/imaging - **requires a clinical measure**.

1. Efficiency in Health. Productivity Commission, Australian Government. https://www.pc.gov.au/research/completed/efficiency-health/efficiency-health.pdf
2. The Role Of Clinical Waste In Excess US Health Spending. Health Affairs. https://www.healthaffairs.org/content/briefs/role-clinical-waste-excess-us-health-spending

Sparked
HL7 FHIR

PROCEDURE GROUP — CLINICAL OUTCOME DATA ELEMENT

Impact	• Clinical outcomes reporting = **current requirement for third-party payers in primary & allied health** (3).
	"Measure and demonstrate the effectiveness of treatment."
	• 5 CCMP sessions, split between providers; continuity of care requires understanding impact of care across providers
	• Measure of patient safety in line with WHO indicators (4).
This is a priority right now!	• CCMP reform and the GP/care team needs to understand the CCMP benefits.
	• Clinical Procedural Safety - NSW Health Policy = must record patient outcomes (5)
	• Value-based care & funding models reform
	Why are we sharing data if not to;
	1) help the patient at the patient level
	2) inform decisions at a clinician level,
	3) reduce the cost/burden of disease at a system level.
	Therefore, we must record what is helping the patient!

3. Worksafe Victoria. Clinical Framework for the Delivery of Health Services. 2012.
4. WHO patient safety indicators https://iris.who.int/bitstream/handle/10665/343477/9789240032705-eng.pdf pg 88
5. NSW Government. Policy Directive - Clinical Procedure Safety, Feb 2025. https://www1.health.nsw.gov.au/pds/ActivePDSDocuments/PD2025_006.pdf

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About Me

Data group	New: Consumer driven "About Me"
Data elements examples	Disability Identifier Cultural information Sexual orientation, gender identity
Why?	**About Me** information is the most important details that a **person wants to share** with professionals in health care. People will only have to **share information once** and can update as needed
What is the impact?	Ensuring that providers understand what is important to this person Improve clinician's capabilities to understand and better meet a person's needs Essential to attaining the highest possible health and wellbeing outcomes
Why now?	Vic has commenced integrating About Me questions at health services and DoH initiatives UK ahead of the game for us to learn from (About Me Standard v2.01 – PRSB)
Presenter	Kath Feely

Vaping summary

Data group	Vaping summary
Data elements	Overall status
Why?	The Tobacco Smoking Summary data group currently included in AUCDI R2 only tells part of the story for the smoking habits of an individual. According to the National Drug Strategy Household Survey 2022-2023, 15% of people 14 and over reported regularly smoking and/or vaping in 2022-2023. Almost one-third of these people reported only vaping.
What is the impact?	Getting a more complete picture of lifestyle risk factors at a patient and population level
Why now?	The health risks of vaping are well documented and their increasing use needs to be monitored, managed and measured
Presenter	Vicki Bennett, Australian Institute of Health and Welfare

Adverse reaction risk summary

Priority data elements for AUCDI-R3

Ms. Jillian Kehoe
Senior Project Officer, National Allergy Council
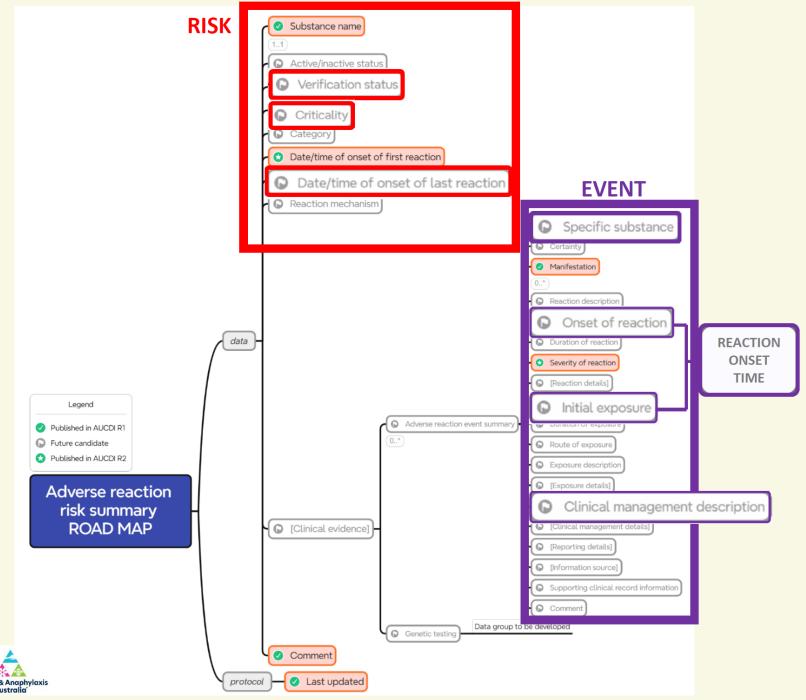Contact: jillian@nationalallergy.org.au

Prof. Michaela Lucas
Clinical Immunologist & Allergist,
Sir Charles Gardiner Hospital Perth,
Perth Children's Hospital
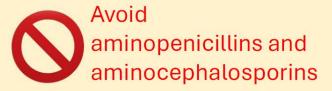*Director, National Allergy Council*

History of anaphylaxis to amoxicillin

Skin test confirmed allergic to amoxicillin but not to other penicillins

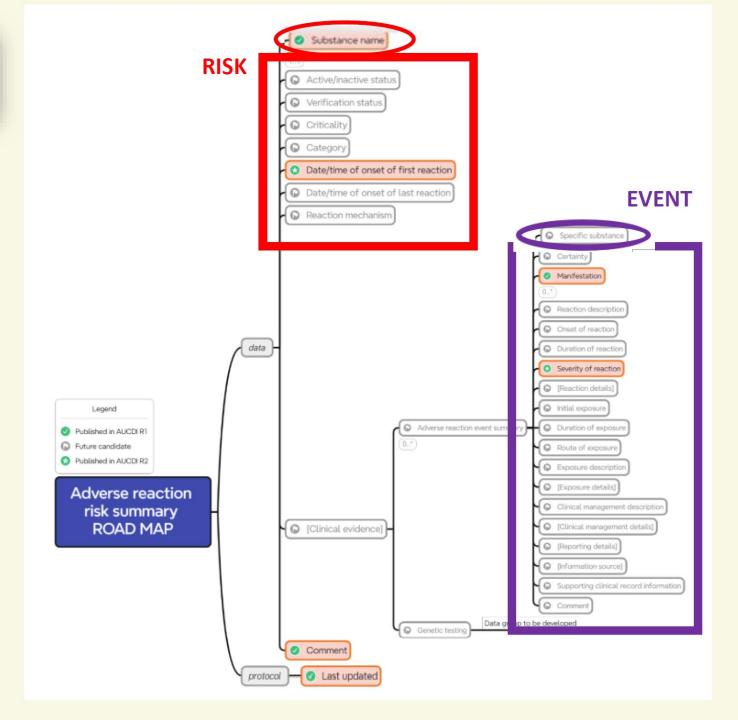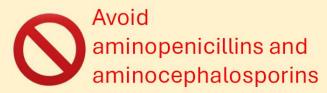Tolerated the penicillin VK challenge without issues

🚫 Avoid aminopenicillins and aminocephalosporins

amoxicillin

aminopenicillins
aminocephalosporins

Legend
- ✓ Published in AUCDI R1
- ☐ Future candidate
- ✪ Published in AUCDI R2

Adverse reaction risk summary ROAD MAP

RISK
- Substance name
- Active/inactive status
- Verification status
- Criticality
- Category
- Date/time of onset of first reaction
- Date/time of onset of last reaction
- Reaction mechanism

EVENT
- Specific substance
- Certainty
- Manifestation
- Reaction description
- Onset of reaction
- Duration of reaction
- Severity of reaction
- [Reaction details]
- Initial exposure
- Duration of exposure
- Route of exposure
- Exposure description
- [Exposure details]
- Clinical management description
- [Clinical management details]
- [Reporting details]
- [Information source]
- Supporting clinical record information
- Comment

data

[Clinical evidence]

Adverse reaction event summary

Genetic testing — Data group to be developed

Comment

protocol — Last updated

History of anaphylaxis to amoxicillin

Skin test confirmed allergic to amoxicillin but not to other penicillins

Tolerated the penicillin VK challenge without issues

Avoid aminopenicillins and aminocephalosporins

Specific substance — amoxicillin
Substance name — aminopenicillins aminocephalosporins

Skin test shows a 15mm wheal to peanut but has had **no exposure.**

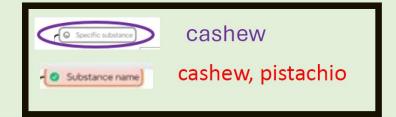There is **no reaction history** (and there is no date/time of reaction because there hasn't been a reaction)

but clearly... the substance= peanut and the manifestation= anaphylaxis.

Specific substance — *not entered*
Substance name — peanut

History of anaphylaxis to cashew

The substance (alert) should be cashew and pistachio unless proven otherwise

Specific substance — cashew
Substance name — cashew, pistachio

Of those labelled with a penicillin allergy....

Tara has had a **penicillin allergy** label since childhood and recently had a reaction with hives and cough

Approx. 90% do NOT have a true penicillin allergy

Second line antibiotics

More expensive

Less effective

Longer hospital stays

More ED presentations

Increased antimicrobial resistance

Increased risk of infection

Greater costs to the healthcare system

Sparked HL7 FHIR

ascia australasian society of clinical immunology and allergy

national allergy council

Allergy & Anaphylaxis Australia

Tara visits her GP to be tested for her penicillin allergy

Tara's GP conducts a risk assessment based on Tara's allergy history.

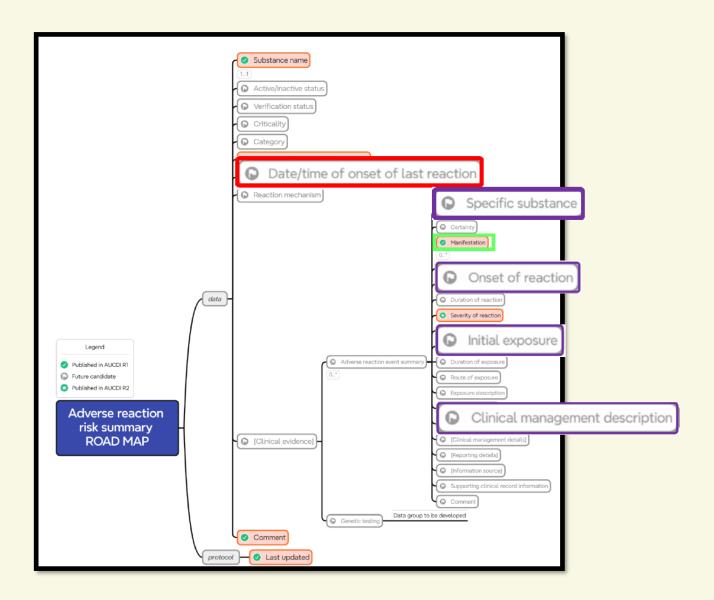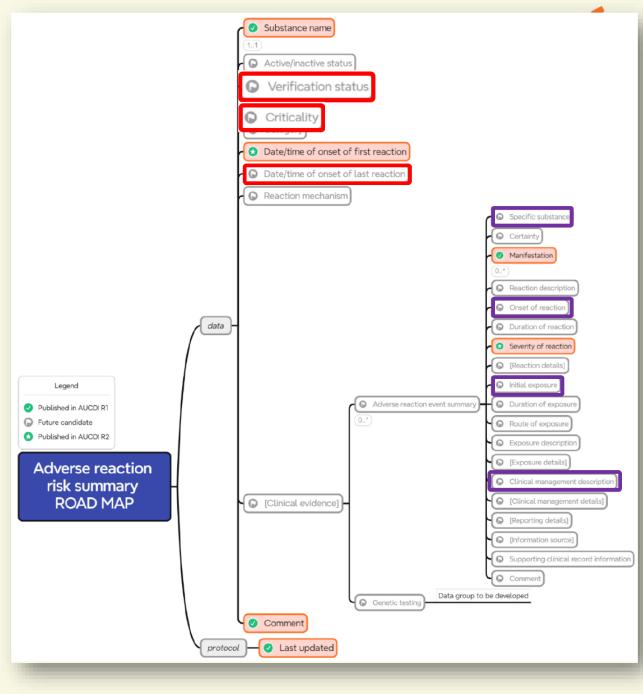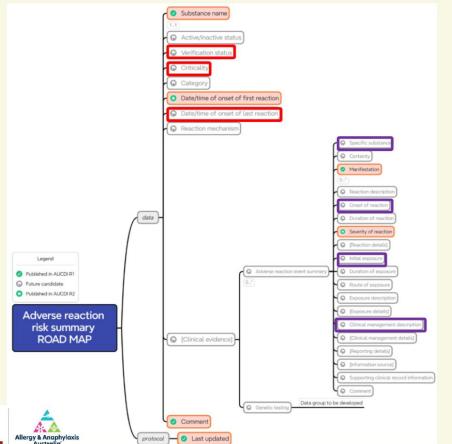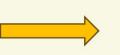8 months later, Tara presents to the Emergency Department with a **skin infection**

The emergency clinician is able to access Tara's **medical records**.

The emergency clinician immediately administers **flucloxacillin** (an alternative penicillin antibiotic)

Risk summary	
Substance name	Amoxicillin
Verification status	Confirmed
Criticality	High risk
Date/time onset of first reaction	1989
Date/time onset of last reaction	4/10/2021
Comment	Can tolerate all other penicillins
Last updated	21/11/2024

Event summary	
Specific substance	Amoxicillin
Manifestation	Urticaria, wheeze, cough.
Reaction onset time	10 minutes
Severity of reaction	High
Clinical management description	Treated with 1 dose of 300mcg adrenaline administered 15mins post reaction onset.

Guided clinical decision making

Rapid, effective treatment

Avoided an adverse event

Improved clinical outcomes

Improved future outcomes

Informed and empowered the patient

Reduced healthcare system costs

Supported clinical guidelines

Thank you

Any questions?

Heart Rhythm

Data group	Heart rhythm
Data elements	- Heart rhythm value (coded values) - Examples - 933506231000036108 |*Regular heart rhythm*| and 361137007 |*Irregular heart rhythm*|) [Heart Rhythm value set](#) - Date of measurement
Why?	Heart rhythm is commonly recorded in addition to pulse rate.
What is the impact?	A standard representation of this observation supports its exchange between systems.
Why now?	It is included in the First Nations Health Check and its FHIR implementation which is soon to be piloted. It already attempts to exchange this data. A standard model would help to make that more predictable.
Presenter	Liam Barnes

Head circumference

Data group	Head circumference
Data elements	• Head circumference value (+ unit - cm) • Date of measurement
Why?	Head circumference is commonly recorded in child health.
What is the impact?	A standard representation of this observation supports its exchange between systems.
Why now?	It is included in the First Nations Health Check and its FHIR implementation which is soon to be piloted. It already attempts to exchange this data. A standard model would help to make that more predictable.
Presenter	Liam Barnes

Blood pressure

Data group	Blood pressure
Data elements	Body position
Why?	It is important to capture the position a patient was in when a blood pressure measurement was taken (e.g. sitting, standing, lying). This is commonly record in primary care. Use case initiating this item is the CVD risk calculator application where the algorithm is based on sitting blood pressure results.
What is the impact?	Having specific item with coded values describing different positions, allows different blood pressure measurements to be distinguished from each other.
Why now?	This data element is a common concept already in use (e.g. primary care) CVD risk calculator uses this specific data.
Presenter	Liam Barnes

Sparked
HL7 FHIR

Workshop 3: Prioritisation time!

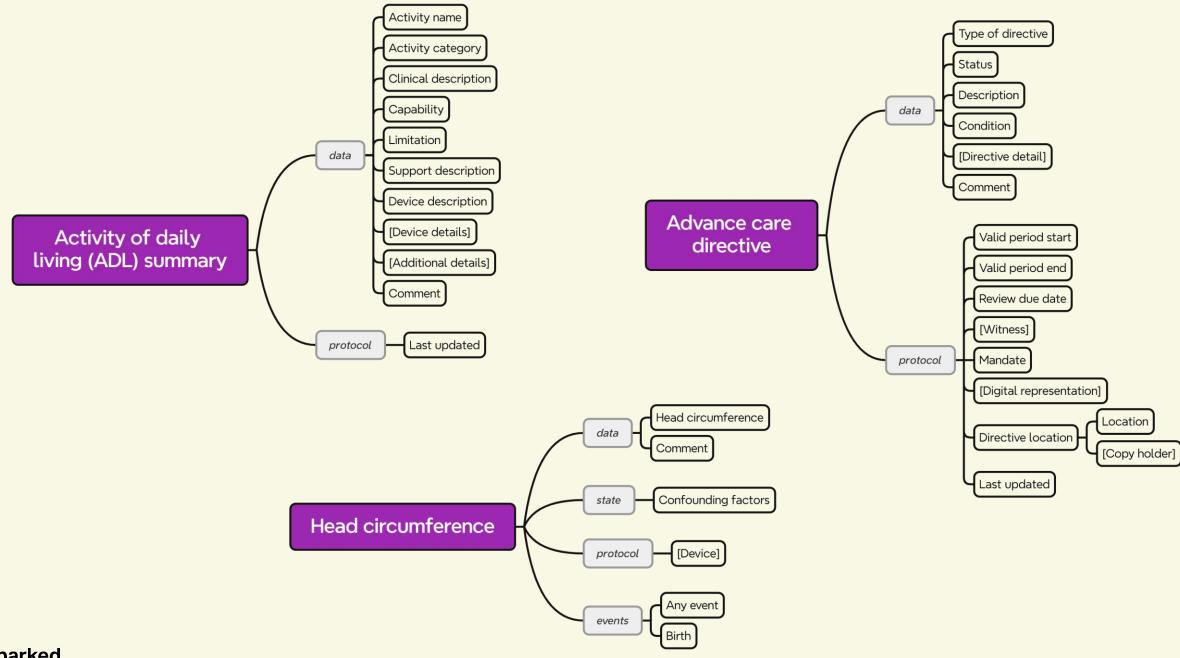- Identify the high priority items to be included in AUCDI to inform the workplan for AUCDI R3

- At your table, discuss the community pitch items presented and identify the top 4 high priority items for inclusion in AUCDI R3

As a **group**
at your table

Sparked
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Activity of daily living (ADL) summary
- data
  - Activity name
  - Activity category
  - Clinical description
  - Capability
  - Limitation
  - Support description
  - Device description
  - [Device details]
  - [Additional details]
  - Comment
- protocol
  - Last updated

Advance care directive
- data
  - Type of directive
  - Status
  - Description
  - Condition
  - [Directive detail]
  - Comment
- protocol
  - Valid period start
  - Valid period end
  - Review due date
  - [Witness]
  - Mandate
  - [Digital representation]
  - Directive location
    - Location
    - [Copy holder]
  - Last updated

Head circumference
- data
  - Head circumference
  - Comment
- state
  - Confounding factors
- protocol
  - [Device]
- events
  - Any event
  - Birth

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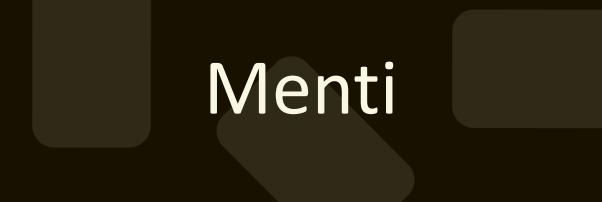HL7 FHIR

Menti

Next Steps

- Progress the AUCDI R3 development through online CDGs
    - 17 September
    - 8 October
    - 10 December

- Next Face to Face November in Canberra! It's going to be huge!
    - CDG 12 November
    - TDG 13 November

- Planning ahead- we are heading to Tasmania
    - February 2026

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Sparked Podcast

We created the Sparked Podcast - bringing together the biggest names in the industry to discuss the challenges, breakthroughs, and future of digital health.

Hosted by Brett Sutton AO, Season 1 features digital health leaders, including: Elizabeth Koff, Grahame Grieve, Daniel McCabe, Danielle Bancroft, Peter O'Halloran, and Rob Hosking

Season 2 launching soon!

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THE SPARKED COMMUNITY

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Thank you!