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From Evidence to Action

How the ACDC Program and Kinnexus SMART on FHIR Platform Can Accelerate Australia's Aged Care Data and Digital Reform Agenda

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Table of Contents

1	Introduction	3
2	Royal Commission as catalyst for data and interoperability agenda	3
3	Aged Care Data and Digital Strategy 2024–2029	4
4	The evidence base for aged care data reform	5
5	Translating research into practice	6
6	From research evidence to an implementation-ready application	7
7	A scalable implementation model for national aged care reform	7
8	How does this evidence base align with what governments need?	8
9	Independent evidence reinforces the case for coordinated national action	9
10	Conclusion	13
Appendix A: ACDC Program Deliverables		14
Appendix B: Aged Care Data and Digital Strategy outcomes, priorities and Year 2 actions		18
About the Digital Health CRC		19

1 Introduction

The Digital Health CRC (DHCRC) commenced operation in 2018, concurrently with the Royal Commission into Quality and Safety in Aged Care, which ran from October 2018 to March 2021[1]. Reflecting the priorities of its research and industry partners, DHCRC identified the digital transformation of aged care as a flagship research focus and subsequently invested in a long-term program of work examining how aged care data can be standardised, shared and reused to improve care, quality measurement and system stewardship.

The Royal Commission catalysed a major rewrite of Australia's aged care legislation and highlighted longstanding challenges relating to data quality, interoperability and information sharing. Its findings have since shaped both the National Digital Health Strategy 2023–20282 and the Aged Care Data and Digital Strategy 2024-20293, recognising that many reforms depend on common standards, connected systems and high-quality data that can move across organisational and sector boundaries.

Five years after the Royal Commission, the Aged Care Data Compare (ACDC) program provides a substantial Australian evidence base for advancing aged care data reform. This paper examines how ACDC, ACDC Plus and the subsequent Kinnexus platform have developed and tested approaches to standardised assessment, interoperable data exchange, quality measurement and data reuse. It considers how these outputs align with current government strategies and where further validation, policy direction and scaled implementation are required.

2 Royal Commission as catalyst for data and interoperability agenda

The Royal Commission's data and interoperability agenda is strongly reflected in the National Digital Health Strategy 2023–2028, particularly through its focus on system interoperability, seamless information sharing across care settings, and the principle that a person's key health information should follow them rather than requiring them to retell their story.

Recommendations 67 (improving data about interactions between health and aged care) and 109 (information and communication architecture and technology investment) are reflected in the Strategy's emphasis on connected care, common standards, near-real-time data exchange and the National Healthcare Interoperability Plan. Recommendation 68 (universal adoption of digital technology and My Health Record) is carried forward through continued expansion of My Health Record and greater aged care participation in digital information exchange, while Recommendation 108 aligns closely with the Strategy's

[1]Royal Commission into Aged Care Quality and Safety. (2021). *Final report: Care, dignity and respect: Volume 1, summary and recommendations.* Commonwealth of Australia

[2] Australian Digital Health Agency. (2023). National Digital Health Strategy 2023-2024.

[3] Department of Health, Disability & Aged Care. (2024), Aged Care Data and Digital Strategy, Driving better care and leading a sustainable and productive care and support economy 2024-2029. Commonwealth of Australia.

'data driven' outcome, which promotes linked data, population datasets, analytics, research and evidence-based planning.

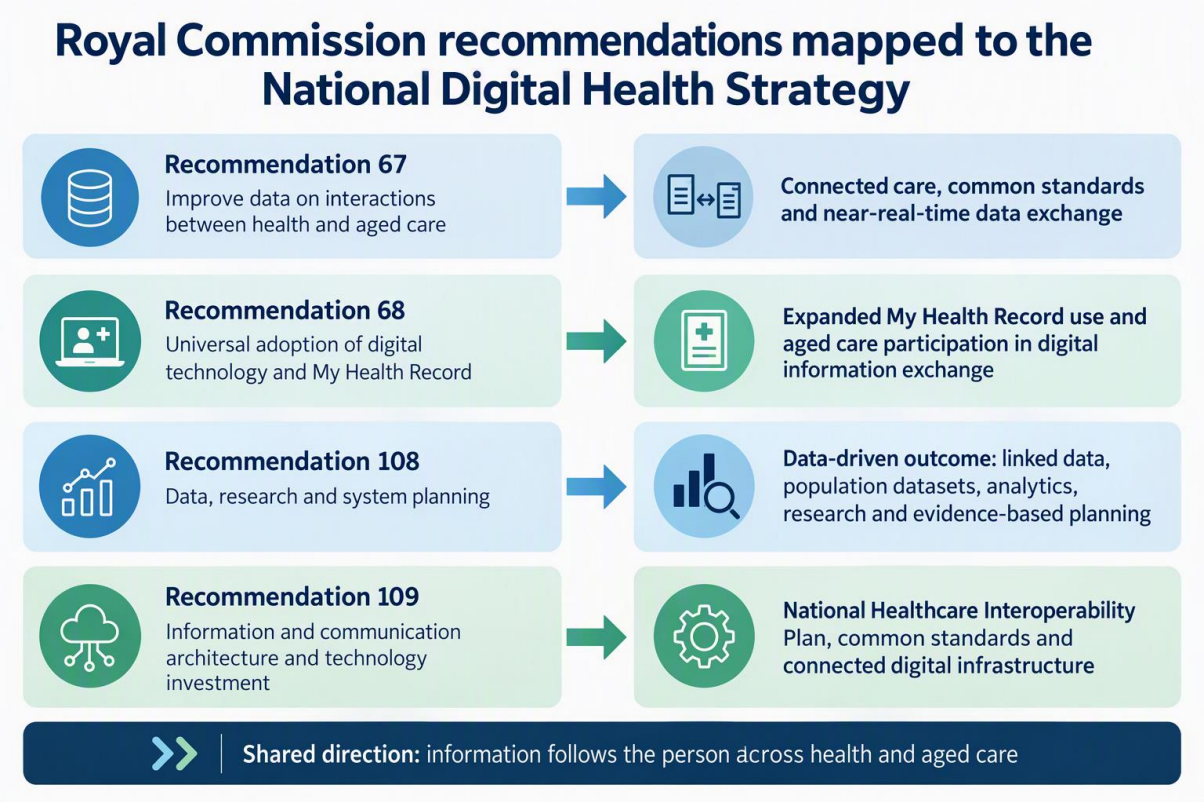

Figure 1: Royal Commission recommendations mapped to the National Digital Health Strategy

The relevance of the National Digital Health Strategy to this paper is therefore practical rather than merely thematic. It establishes the national direction for standards-based information exchange and data reuse across care settings. The Aged Care Data and Digital Strategy applies this national direction to aged care, while ACDC and Kinnexus provide sector-specific evidence about how its elements could be implemented.

3 Aged Care Data and Digital Strategy 2024–2029

The Aged Care Data and Digital Strategy 2024–2029 complements the National Digital Health Strategy and the Digital Health Blueprint[4] by applying their broad directions to the aged care sector.

Both strategies prioritise digital empowerment for consumers, carers and the workforce. They also align strongly on connected and interoperable systems that enable secure information sharing, reduce duplication and support smoother transitions between care settings. Inclusion and equity are common priorities, including digital inclusion, accessibility and support for people who prefer or require non-digital channels. Both strategies also promote safe data reuse for research, planning, quality improvement and better decision-making. They share a commitment to common data standards, modern infrastructure and national digital foundations. Trust, privacy and security are consistent themes across both agendas.

[4] Department of Health, Disability & Aged Care. (2023). Digital Health Blueprint 2023-2033: A more personalised and connected health and wellbeing experience for all Australians. Commonwealth of Australia.

Although the strategies share broad objectives, the aged care strategy is being implemented through annual action plans and does not yet set out an equally detailed, consolidated pathway to sector-wide interoperability and routine data reuse.

The Department of Health, Disability and Ageing's Year 1 progress report[5] indicates credible progress in establishing foundations for aged care digital reform, including infrastructure to support the new Aged Care Act 2024[6] and increased provider access to My Health Record[7]. However, measures of provider digital maturity remain largely diagnostic, and the available reporting does not yet demonstrate sector-wide transformation at the level envisaged by the national strategies.

The most difficult elements remain ahead. These include:

1. Achieving real interoperability between aged care and other healthcare settings
2. Securing consistent, sector-wide adoption of data standards.
3. Delivering measurable uplift in provider digital maturity.
4. Embedding routine use of shared care information across settings.
5. Demonstrating improvements in consumer outcomes and experience.
6. Moving from pilots, frameworks and foundational work to scaled implementation.

Related work led by the Australian Institute of Health and Welfare has produced version 2 of the Aged Care National Minimum Data Set[8] and the National Aged Care Data Asset[9], which gives approved researchers access to longitudinal, de-identified person-level data on Australian Government-funded aged care programs and assessments. Further progress on the functional-assessment component of the minimum data set requires clear policy direction on a consistent national approach. This decision is also important to the alignment of aged care information with data collected across the broader health and care continuum.

4 The evidence base for aged care data reform

In 2020, the DHCRC partnered with the Department of Health, Disability and Ageing, aged care providers, software vendors and leading Australian researchers to address one of the sector's longstanding challenges: the fragmented collection and use of aged care data. This investment established the Aged

[5] Department of Health, Disability & Aged Care. (2025), Annual Report – Aged Care Data and Digital Strategy: Reporting on Progress against the Year 1 Action Plan 2024-2025. Commonwealth of Australia.

[6] Department of Health, Disability & Aged Care. (2025), About the Aged Care Act 2024. Commonwealth of Australia.

[7] My Health Record is the national online system for storing personal health data, operated by the Australian Digital Health Agency

[8] Aged Care National Minimum Data Set (NMDS) is a core set of standard data items for mandatory collection and reporting at the national level about aged care. https://meteor.aihw.gov.au/content/774715

[9] National Aged Care Data Asset (NACDA) contains aged care data to support program administration and policy. Data is deidentified and updated annually within 15 months of end of each financial year.

Care Data Compare (ACDC) program, a multi-year initiative comprising two collaborative research projects, ACDC and ACDC Plus[10].

Together, these projects examined how standardised aged care data could be collected once and reused for care planning, quality improvement, benchmarking, reporting, research and policy development. ACDC (2020–2023) established conceptual, technical and sector foundations for data standardisation, interoperability and quality-indicator measurement, informed by nurses' need for better support from clinical information systems. In the absence of a nationally standardised approach to assessing the care and support needs of older people, the program used the internationally recognised interRAI assessment system as a reference model for representing functional-assessment data consistently. ACDC Plus (2023–2025) then tested elements of this approach through implementation pilots, secure data infrastructure, benchmarking dashboards, data-extraction methods and a quality indicator application that uses SMART App Launch[11].

This research provides a significant Australian case study of how interoperable, resident-level aged care data may be reused across multiple purposes and stakeholders. The Royal Commission cited ACDC as an exemplar of an approach to interoperability across aged care information systems and recommended that related standards work be extended to care at home. That extension has not yet occurred, leaving an opportunity to test whether the approach can support a more consistent data model across residential and in-home care.

Appendix A provides a summary of the deliverables, including publications, arising from the ACDC Program.

5 Translating research into practice

Consistent with its role of translating research into scalable solutions, the DHCRC moved to apply the findings of the ACDC program in real-world settings. DHCRC commissioned a review of the sociocultural and technical requirements for implementing a standardised approach to functional assessment across aged care. The review[12], published in early 2025, recommended exploring the delivery of interRAI assessments through a SMART on FHIR application, enabling a consistent user experience across aged care software through a single, reusable technology solution. Taking on this recommendation, the DHCRC commenced development in mid-2025 of a SMART on FHIR application designed to support standardised functional assessments and quality indicator reporting.

DHCRC engaged Australian-based software developer, Beda Software[13], to develop the planned application. Noting this would be an Australia-first FHIR-based application for aged care, the DHCRC hosted a free national webinars series for interested sector stakeholders to learn and observe the development process[14]. In late 2025, DHCRC showcased the resulting application, Kinnexus, and

[10] DHCRC website

[11] https://build.fhir.org/ig/HL7/smart-app-launch/en/

[12] Semantic Consulting (2025). interRAI Implementation Feasibility Analysis, Understanding the barriers and feasible pathways to the systemic implementation of interRAI in Australian aged care. Digital Health CRC.

[13] Beda Software

[14] https://digitalhealthcrc.com/announcing-the-aged-care-impact-series/

extended invitations to sector providers and their vendors to pilot Kinnexus. The subsequent engagement with providers and vendors has resulted in several enhancements to Kinnexus to meet provider cyber security requirements and updated B2G conformance, together with additional reporting features requested by clinical staff such as real-time quality indicator dashboards and visualisation tools.

6 From research evidence to an implementation-ready application

Kinnexus is a SMART on FHIR application designed to integrate with existing clinical information systems used in the care of older Australians. It supports standardised, evidence-based functional assessment within routine workflows so that information captured at the point of care can be reused for clinical decision-making, quality measurement and reporting, including business-to-government reporting. Based on the interRAI residential aged care assessment[15] and mapped to Australian Core Data for Interoperability (AU Core)[16], the prototype also provides a technical basis that could be tested for in-home care or adapted for other validated assessment instruments.

For aged care nurses and allied health practitioners, Kinnexus offers the ability to:

- Complete resident functional assessments from within normal clinical workflows, reducing duplicate documentation.
- Automatically generate quality indicators from assessment data, reducing manual reporting.
- See issues sooner and monitor quality and risk in real time, rather than waiting for reports.
- Streamline audits, reporting and quality assurance through consistent data.

In summary, Kinnexus helps clinicians record information once and use it many times, reducing paperwork while improving care, quality monitoring and reporting.

7 A scalable implementation model for national aged care reform

Kinnexus provides government with a practical demonstration of how a consistent approach to aged care functional assessment, data collection and reporting could be implemented. It supports consistent capture of care information, quality measurement and sector benchmarking, while offering evidence relevant to aged care data governance reform.

Kinnexus provides a practical way to improve aged care data and reporting without requiring providers to replace existing software. Vendors can integrate a single, evidence-based, validated application using SMART Launch (an 'integrate once re-use many' technology) into their current systems. This supports nationally consistent data mapping and reporting while reducing implementation costs and disruption across the sector.

[15] interRAI Long Term Cre Facilities (LTCF) comprehensive assessment instrument

[16] Au Core supports the use of HL7 FHIR in the Australian context

8 How does this evidence base align with what governments need?

Table 1 below provides a high-level comparison of the alignment of the focus and time horizons for the key components to the National Digital Health Strategy 2023-2028, the Digital Health Blueprint and Action Plan 2023-2033 and the Aged Care Data and Digital Strategy 2024-2029 and its Year 2 Action Plan[17].

Table 1: Comparative alignment of national digital health and aged care strategies and implementation priorities

Component	National Digital Health Strategy 2023–2028	Digital Health Blueprint and Action Plan 2023–2033	Aged Care Data and Digital Strategy 2024–2029 and Year 2 Action Plan 2025–26
1. Structure	Strong structural alignment. Year 2 retains the national outcome architecture while prioritising implementation of the new Aged Care Act and related government and provider system changes.		
Comparison	Defines four outcomes: digitally enabled, person-centred, inclusive and data-driven.	Translates these into consumer choice, workforce capability, secure data reuse and modern digital foundations.	Applies the same structure to older people; workers, providers and clinicians; secure data use; and standards-based foundations.
2. National priorities	Strong alignment, with clearer implementation activity across all four priorities. Delivery, however, remains project-based rather than a coordinated sector-wide transformation program.		
Comparison	Promotes connected, secure, person-centred, inclusive and data-informed services.	Advances consumer control, connected care, workforce capability, secure data reuse and national infrastructure.	Year 2 includes GPMS, My Aged Care, ePrescribing, virtual nursing, technology pilots, LiveUp, KeepAble, IAT, advance care planning, language translations, NMDS v2, the National Best Practice Data Set, the National Aged Care Data Asset and provider data-literacy work.
3. Interoperability and standards	Stronger implementation of selected standards, but incomplete interoperability coverage. Year 2 adds conformance and data-standard deliverables, with limited visibility of broader clinical exchange, reference architecture, sector-wide adoption requirements or measurable interoperability outcomes.		
Comparison	Prioritises connected care, real-time exchange, common standards and the National Healthcare Interoperability Plan.	Promotes “share by default”, standards-based exchange, connected pathways and national infrastructure.	Advances ePrescribing conformance, B2G APIs, NMDS v3, GPMS consolidation and data governance aligned with cybersecurity requirements.
4. Ambition and timing	Greater near-term specificity, but no consolidated pathway to 2028 or beyond. Year 2 clarifies immediate activity and selected deadlines, but not how the portfolio will collectively deliver connected, standards-based and routinely data-driven care.		
Comparison	One overarching timeline: 2023–2028.	Three horizons: 2023–2025, 2025–2028 and 2028 onwards.	Annual delivery cycle: 2025–26, with emphasis on reforms supporting the new Aged Care Act.

The aged care strategy and its Year 2 Action Plan provide an increasingly clear roadmap, with current activity concentrated on foundational infrastructure, government platforms and enabling capabilities. Compared with the Blueprint, there is less detail on the sequence and timing for achieving sector-wide

[17] Department of Health, Disability and Aged Care (2024). Action Plan Year 2: Aged Care Data and Digital Strategy, 2024-2029. Commonwealth of Australia.

interoperability and routine data reuse. This makes practical implementation evidence, as the DHCRC work provides, particularly relevant to decisions about subsequent phases of reform

Against this policy context, ACDC, ACDC Plus and Kinnexus contribute complementary forms of evidence. ACDC defined the data, standards and quality-measurement problem; ACDC Plus tested technical and workflow approaches in provider settings; and Kinnexus translated those findings into an implementation-ready prototype. Together, they help explain how strategic objectives relating to standardised assessment, interoperable exchange, automated reporting, data reuse and benchmarking could be advanced, while also identifying the further work required for national adoption.

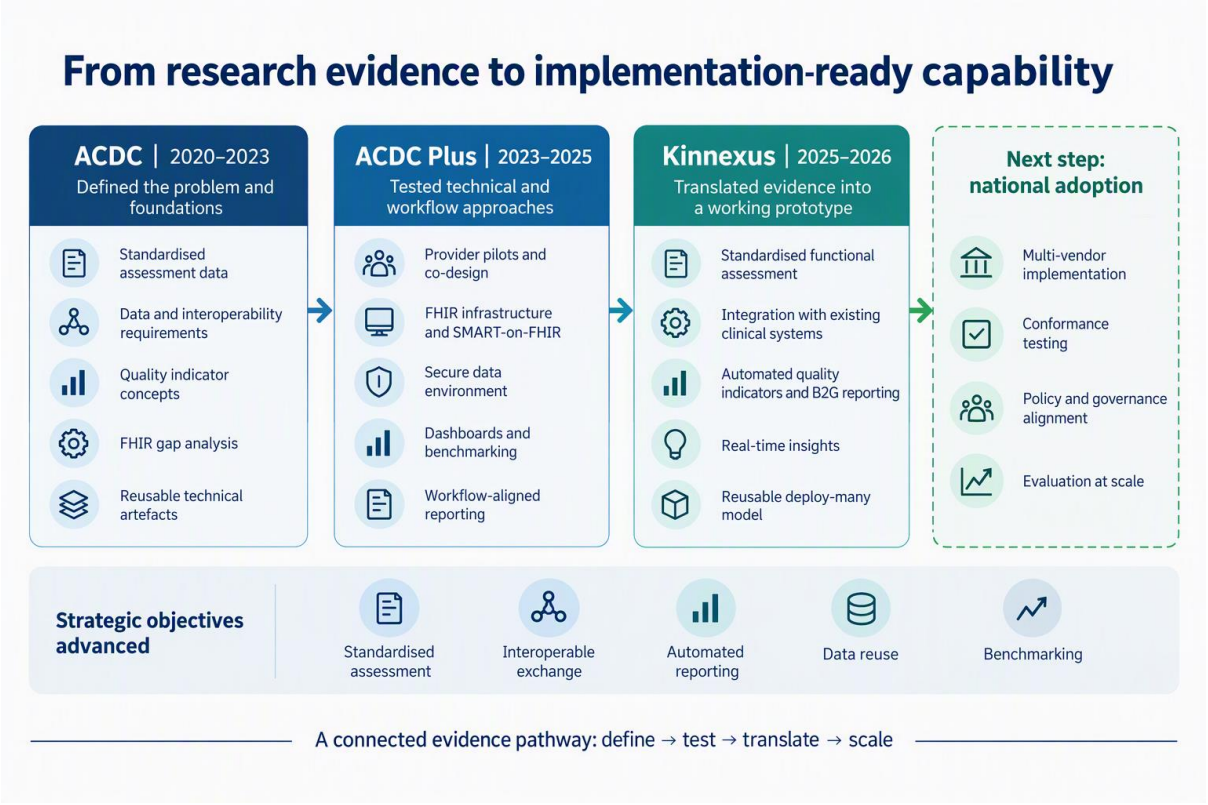

Figure 2: A connected evidence pathway from research to national implementation

9 Independent evidence reinforces the case for coordinated national action

To inform national efforts to improve interoperability across aged care, the DHCRC and CSIRO undertook a comprehensive review of Australia's aged care data landscape in 2025[18]. The review found that aged care data remains fragmented, difficult to compare and challenging to reuse, and highlighted the need for common data standards, stronger information-sharing capabilities and a coordinated national approach to data access and use.

[18] Varnfield M, Higgins L, O'Driscoll D, Carter G, Stekelenburg N, Loi K, Ebrill K, Hansen, D, Schmiede A and Frean I (2025) *The Australian aged care data landscape: gaps, opportunities and future directions*. CSIRO.

These findings were subsequently shared with the independent consultants engaged by the Department to undertake its Aged Care Data and Reporting Review[19] in response to the Royal Commission's recommendations on data and interoperability. Completed in mid-2026, the review examined opportunities to improve data quality, consistency and usefulness, reduce provider reporting burden, and streamline government reporting.

The review identified four key findings:

- Reporting burden is driven by misalignment across reporting requirements, systems and processes.
- Inconsistent systems and data definitions create inefficiencies.
- Clinical reporting requirements are not always aligned with care delivery workflows.
- Capability building and change management are critical implementation considerations.

Its recommendations, which remain under consideration by the Department, were grouped into four broad themes:

- Establish common foundations for aged care data.
- Align reporting with standards.
- Align reporting requirements with care delivery and operational processes.
- Strengthen sector capability.

Taken together, these findings align closely with the priorities of the Aged Care Data and Digital Strategy and reinforce the central proposition of the ACDC program: that standardised, interoperable data is fundamental to reducing reporting burden, improving quality measurement and enabling better outcomes for older Australians. They also strengthen the case for practical implementation approaches, such as Kinnexus, that translate these principles into operational solutions.

Table 2 provides a further assessment of the ACDC program and Kinnexus platform outputs and the extent to which they offer useful evidence for government implementing the reform priorities in the Aged Care Data and Digital Strategy (2024-2029) and the Aged Care Data and Reporting Review (unpublished 2026). (For reference, Appendix B summarises the Aged Care Data and Digital Strategy 2024-2029 outcomes, priorities and Year 2 actions.)

[19] https://www.health.gov.au/resources/publications/aged-care-data-and-reporting-review-phase-2-consultation-paper?language=en

Table 2: Assessment of ACDC Program and Kinnexus outputs as evidence for implementing Australian Government aged care data and digital reform priorities

Reform objective	Strategy & Year 2 Action Plan alignment	Aged Care Data & Reporting Review alignment	Tangible evidence from ACDC & Kinnexus	Assessment & remaining gap
1. Common data foundations & consistent definitions	Outcome 3 & Priority 6: better collection, quality & reuse of data; NMDS & National Best Practice Data Set. Outcome 4: a standards-based system.	Establish common foundations for aged care data; address inconsistent definitions & software encoding.	ACDC defined reusable resident-level data requirements, quality-indicator concepts & pseudocode; undertook a FHIR gap analysis; developed FHIR Questionnaires & SMART Forms; & documented encoding problems in mandatory quality-indicator concepts.	ACDC and Kinnexus examine the problem and provide workable technical approaches. Further work is needed to align the artefacts formally with national data & terminology standards & secure sector-wide adoption.
2. Standards-based interoperability & information exchange	Outcome 4 & Priorities 7–8: modern foundations, digital maturity & stewardship. Year 2 actions include B2G APIs, GPMS consolidation & continuing NMDS development.	Align reporting with standards & overcome inefficiencies created by non-interoperable systems.	ACDC Plus implemented FHIR server infrastructure, APIs & SMART on FHIR architecture. The ACQI App demonstrated a standards-based design for quality-indicator capture & exchange. Kinnexus carries this architecture into a deployable solution designed to adapt as reporting requirements change.	ACDC & Kinnexus provide proof of technical feasibility for aligning reporting with data standards. Further evidence of scale required to exchange live clinical data through the App and write-back.
3. Collect once, reuse for multiple purposes	Outcome 3: secure sharing & reuse for continuous improvement & research. Priority 3: maximise time for direct care by reducing duplicative entry & administration.	Align reporting requirements with care delivery & operational processes; reduce reporting burden.	The program showed that routine assessment & care-planning data can support care, mandatory reporting, quality monitoring, benchmarking, research & policy. Workflow analysis identified duplicate collection & proposed real-time calculation from routine clinical records. Kinnexus automates extraction from provider systems for mandatory reporting.	ACDC and Kinnexus provide a practical response to government objectives. ACDC quantified time savings, data-quality gains & end-to-end submission efficiencies are still to be replicated at scale with Kinnexus. Multi-vendor deployment & performance testing remain necessary.
4. Business-to-government reporting	Year 2 B2G connectivity: automate reporting through APIs to improve efficiency & accuracy & release time for direct care.	Streamline government reporting & align requirements with provider systems & workflows.	Kinnexus is designed to extract quality-indicator data from clinical systems, support evolving reporting requirements & connect with government B2G APIs. Its design responds directly to inefficiencies identified by nurses in ACDC pilots.	Kinnexus is a credible worked example for B2G design. Production-scale deployments are required to demonstrate reporting reliability & B2G integration efficiencies.

Reform objective	Strategy & Year 2 Action Plan alignment	Aged Care Data & Reporting Review alignment	Tangible evidence from ACDC & Kinnexus	Assessment & remaining gap
5. Quality measurement, benchmarking & continuous improvement	Outcome 3: use data for evidence-based care & continuous improvement; strengthen providers' capability to use routinely collected data.	Improve the usefulness of data & align clinical reporting with care workflows.	ACDC developed 25 indicator concepts, calculation requirements & a Power BI dashboard with resident, service & organisational views. ACDC Plus piloted dashboard use with a provider. Kinnexus adds anonymous peer & internal benchmarking to support continuous quality improvement.	ACDC and Kinnexus provide useful evidence of feasibility and usability. Scaled deployments are needed to support broader validation, risk adjustment and sustained use, and to determine whether insights lead to improved care outcomes.
6. Secure secondary use, research & policy	Outcome 3 & the National Aged Care Data Asset: secure reuse of de-identified data for research, planning & identification of improvement opportunities.	Establish common foundations & governance that enable useful, secure data reuse.	ACDC built a prototype data hub; ACDC Plus established secure storage & analysis infrastructure using de-identified person-level data, transfer methods & structures for benchmarking & research.	ACDC explicitly demonstrated the value that standardised assessment data offers for the quality & reliability of clinical assessment data & its secondary use for reporting. [No remaining gap]
7. Sector capability, co-design & scalable innovation	Outcomes 2 & 4: digitally empowered workers & providers; build maturity; translate emerging technology; connect providers, vendors & researchers.	Strengthen sector capability & treat change management as a core implementation requirement.	ACDC Plus used provider pilots, interviews, co-design, workflow review, rollout planning, user guides & acceptance testing to demonstrate workflow enhancements. Kinnexus translates this into a potentially scalable product & provides a vehicle for provider & vendor capability-building.	ACDC and Kinnexus provide a strong case study of research translation. The progression from research to product is tangible. Evidence for commercial sustainability, procurement, support, vendor uptake & sector-wide scaling is still prospective.

Tables 1 and 2 show that ACDC (2020–2023), ACDC Plus (2023–2025) and Kinnexus (2025–2026) are directly relevant to current government priorities. Their principal value lies in the combination of research evidence, reusable technical artefacts, provider-based testing and a working application addressing standardised data, FHIR-based exchange, workflow-aligned reporting, quality measurement, secure reuse and business-to-government connectivity.

The evidence is stronger on design, feasibility and translation than on national-scale effectiveness. Further multi-vendor implementation, performance testing and evaluation are needed to quantify clinical, administrative and reporting benefits. Nonetheless, the work reduces the amount of new discovery required: it offers government reliable evidence base along with a validated practical approach and starting point for considering a nationally consistent approach to functional assessment and for determining how such an approach could align with AU Core, HL7 FHIR and emerging business-to-government requirements.

10 Conclusion

Australia's aged care reform agenda requires consistent data, interoperable systems and more efficient use of information. These requirements are evident across the Royal Commission's recommendations, the National Digital Health Strategy and the Aged Care Data and Digital Strategy. Their relevance to the ACDC and Kinnexus work is clear: they address practical questions about how these policy objectives can be implemented in aged care settings.

The DHCRC-funded research and translation work constitute a connected body of evidence spanning problem definition, standards development, provider-based testing and translation into a working prototype. Collectively, they demonstrate feasible approaches to standardised functional assessment, FHIR-based interoperability, automated quality measurement, data reuse and business-to-government reporting within existing provider systems and workflows.

While the work provides a solid evidence base, it does not yet establish national-scale effectiveness, commercial sustainability or sector-wide adoption. Those questions require further multi-vendor implementation, conformance testing and independent evaluation. However, the existing evidence and technical assets provide a credible basis for that next stage and can help government test reform policy and implementation options without duplicating work already completed.

Government now has access to a substantial evidence base, tested technical assets from the ACDC program and an implementation-ready platform in Kinnexus. The opportunity is to apply this foundation directly to aged care data reform, including the policy decision to mandate a nationally consistent functional assessment. Leveraging this DHCRC-funded work could significantly shorten the pathway to nationally consistent aged care data and stronger alignment between aged care and the broader health system.

Appendix A: ACDC Program Deliverables

The Aged Care Data Compare program, comprising ACDC and ACDC Plus, demonstrates how standardised aged care data can be collected once and reused for care planning, quality monitoring, benchmarking, reporting, research and policy. The first project (2020-2023) established the conceptual, technical and sector foundations for data reuse; the follow-up project (2023-2025) tested them through implementation pilots, a quality indicator dashboard, secure research data pool, data extraction methods and a SMART on FHIR quality indicator application.

- ACDC (2020-2023) project announcement Project to improve aged care data July 2020
- ACDC Plus (2023-2025) project announcement Aged Care Data Compare to put quality benchmarking to the test April 2023

1. Strategic purpose and sector problem addressed

ACDC showed that standardised residential aged care assessment and care planning data can be reused for quality monitoring, benchmarking and improvement. It addressed a core sector problem: providers collect extensive clinical and care data, but inconsistent definitions, software variation and fragmented reporting limit effective sharing, comparison and reuse. ACDC Plus tested whether ACDC's standards, interoperability solutions and benchmarking capability could work in real-world settings.

2. Standards, interoperability and data exchange

ACDC delivered foundational work on aged care data standards and interoperability, including a standards and interoperability paper, FHIR gap analysis, expert engagement, FHIR Questionnaires, SMART forms and data exchange approaches. It also defined software capabilities needed for FHIR-based sharing. ACDC Plus advanced this through FHIR server infrastructure, SMART on FHIR architecture, APIs, Questionnaires and an ACQI App for standards-based quality indicator capture and exchange.

- Dendere, R., M. Hargrave, J. Ferris, K. Ebrill, I. Frean and L. Gray. (2021). "*A compelling case for the development and adoption of data standards and interoperability in the Australian aged care sector – White Paper*". The University of Queensland, Brisbane, Australia
- Dendere, R., Stockwell-Smith, G., Lang, M., Hargrave, M., Fong, S., Barnes, L., Frankel, H., Bhayat, I., Mayfield, S., & Gray, L. C. (2026). *Development and implementation of a SMART on FHIR application to enhance the clinical utility of quality indicators in residential long-term care*. International Journal of Medical Informatics, 220, Article 106580. https://doi.org/10.1016/j.ijmedinf.2026.106580

3. Data assets and secure research infrastructure

ACDC built a prototype data hub for assembling and managing aged care data for analysis and benchmarking. ACDC Plus extended this through secure storage and analysis infrastructure at the University of Queensland, including de-identified person-level data, de-identification and transfer methods, and data structures for quality indicator calculation, benchmarking and research. This created a practical foundation for secondary use of aged care data to support improvement, research, policy and planning.

- McDonald, K. (2023) *ACDC Plus to trial FHIR-powered quality indicator app with Regis and AutumnCare*, April 5 PulseIT.
- Dendere R, Stockwell-Smith G, Lang M, Hargrave M, Mayfield S, Gray LC. (2026). *Development and Usability of a Dashboard for Quality Monitoring and Resident-Centered Care in Australian*

Residential Long-Term Care: Mixed-Methods Study. JMIR Hum Factors 2026;13:e80478. https://doi.org/10.2196/80478

4. Quality indicators, improved measurement capability and workflow redesign reducing reporting burden

ACDC developed quality indicators that could be calculated from standardised resident-level data, with experts, providers, peak bodies and academics recommending 25 concepts. It also produced pseudocode and data requirements, including for indicators beyond mandatory reporting. ACDC Plus tested practical application through mandatory indicator calculation, risk adjustment exploration, and assessment of how indicator data could support internal quality monitoring and improvement.

- Martin-Khan M, Bird D, Caughey G, Yin M, Morris T, Alan J, Donohoe S, Gray L (2021), *Report - Quality indicators for residential aged care facilities (RACF)*, Brisbane: The University of Queensland

ACDC provided the design and proof-of-concept foundations for data reuse, interoperability and benchmarking. ACDC Plus tested these in real-world aged care settings through pilots with Regis Aged Care and AutumnCare, including interviews, co-design, implementation planning, workflow review, dashboard piloting, ACQI App development, deployment and user acceptance testing.

The research team analysed the disconnect between routine clinical assessment and mandatory quality indicator reporting. It found that similar resident information was often collected during care reviews and again for quarterly reporting, creating duplication and burden. The project proposed embedding quality indicator reporting in routine clinical workflows so indicators could be calculated in real time, documented once, and used immediately for care planning and improvement. Benefits included less duplicate documentation, stronger staff engagement and more clinically meaningful quality data.

- NQIP Quality Indicator data aggregation and submission workflow in Residential Aged Care: A Case Study, (2024). The University of Queensland, Brisbane, Australia
- Issues arising from software encoding of items and definitions in the National Mandatory Quality Indicator Program (QI Program) (2025), The University of Queensland, Brisbane, Australia

5. Dashboards, benchmarking and quality improvement

ACDC designed and tested a prototype quality indicator dashboard using Power BI, showing that resident-level assessment data could calculate, visualise and compare indicators at resident, home and organisational levels. It supported surveillance, benchmarking, trend analysis and multiple user views. ACDC Plus piloted use of the dashboard with Regis Aged Care through rollout planning, user guides, protocols, demonstrations and evaluation, showing how providers could use routine data to identify variation, improve care and benchmark services.

- Dendere R, Stockwell-Smith G, Lang M, Mayfield S, Hargrave M, and Gray L (2026). Empowering residential aged care through data: A user-centred dashboard for quality monitoring and personalised care. 2026 ANZSGM Annual Scientific Meeting
- Contact Info@dhcrc.com if you are interested in viewing technical specifications and related research project artefacts.

6. Policy and system-level value

The combined ACDC program is a practical demonstration of aged care data reform in action. It shows how standardised, resident-level data can support care planning, quality measurement,

benchmarking, internal improvement, external reporting, research and policy. It also highlights the need for common definitions, minimum datasets, standardised assessments, FHIR-based exchange, secure governance, risk adjustment, and better alignment between clinical workflows and reporting requirements. These achievements position ACDC and ACDC Plus as foundations for national work on aged care data standards, interoperability, quality measurement and digital maturity.

7. Limitations informed next step

ACDC Plus identified limitations. Some ACQI App capabilities were constrained by data sourcing issues, deployment delays and limited willingness to write data back to the clinical system. No clinical data was received via the App, some extraction techniques were not adjusted as planned, and the QI validity and policy implications study was not completed.

These limitations point to next steps: live clinical data exchange, fuller App deployment, further risk adjustment, quality indicator validation, and national scaling of data and interoperability infrastructure.

8. Options for translating ACDC program findings into system-wide implementation

As the research evidence from the ACDC program emerged, in late 2024, the DHCRC commissioned a desktop review to understand the sociocultural and technical requirements for successful introduction, at scale, of a standardised approach to functional assessments. This report included a recommendation to consider the implementation of interRAI functional assessments as a SMART on FHIR app, which could be integrated as a consistent experience into all aged care software using a single technology solution (a 'develop once, deploy many' option).

- Digital Health CRC interRAI Implementation Feasibility Analysis: Understanding the barriers and feasible pathways to the systemic implementation of interRAI in Australian aged care, (2025). Semantic Consulting.

9. Options for translating ACDC program findings into system-wide implementation

In mid-2025, DHCRC invested in the development of Kinnexus, building directly on the ACDC program findings. Kinnexus automates mandatory quality indicator reporting by extracting data from aged care providers' clinical information systems. It also supports benchmarking against anonymous peers and internal operations. Based on SMART on FHIR and relevant data standards, the solution is designed to adapt as quality reporting requirements evolve. It aligns with the Department's business-to-government reporting requirements and addresses workflow efficiencies identified by nurses participating in the ACDC pilots.

In late 2025, DHCRC was encouraged to submit a proposal to the Department outlining options to scale Kinnexus across the sector. The proposal focused on:

- **Enhanced functionality:** streamlining provider workflows, linking with business-to-government reporting APIs and incorporating functionality identified through co-design.
- **Sector capability:** enabling software vendors and providers to trial, evaluate and integrate the solution while building practical capability in data standards, interoperability, data reuse and SMART on FHIR implementation.
- **Evidence for scaling:** developing an evaluation-informed roadmap covering the technical requirements, governance and resources needed for sector-wide adoption. The evaluation would also inform government policy on standardised functional assessments.

The submission described the Kinnexus solution and options for achieving sector-wide impact.

- DHCRC (2026), *Kinnexus: Quality Improvement Data Sharing and Utilisation for Aged Care Providers: Scaling continuous quality improvement for aged care providers*. Available on request from DHCRC.

Appendix B: Aged Care Data and Digital Strategy outcomes, priorities and Year 2 actions

The *Aged Care Data and Digital Strategy 2024–2029*[20] comprises four outcomes and eight priorities. The Year 2 Action Plan 2025–26[21] lists actions under each outcome.

Outcome 1: Older people and their support networks can navigate and actively participate in their care and wellbeing

Priority 1: Promote healthy ageing, independence and choice

- Year 2 actions: Strengthen LiveUp through an evidence-based app and expanded healthy ageing content; continue the Be Connected program; and undertake digital and health literacy research.

Priority 2: Create simplified, user-friendly experiences

- Year 2 actions: Improve the My Aged Care website; determine an approach to translated content; and prioritise broader user-experience initiatives across the aged care journey.

Outcome 2: Aged care workers, service providers and health professionals are digitally empowered to provide higher-quality, better-connected care

Priority 3: Maximise time for direct care

- Year 2 actions: Deliver and evaluate virtual nursing; support conformant ePrescribing in electronic National Residential Medication Charts; expand KeepAble; update the Integrated Assessment Tool; and support workforce digital literacy.

Priority 4: Strengthen care connections

- Year 2 actions: Progress virtual nursing, ePrescribing and the Integrated Assessment Tool; improve access to and coordination of advance care planning documents; and continue End of Life Directions for Aged Care resources and digital tools.

Outcome 3: Data is shared and reused securely to deliver a sustainable and continually improving aged care system

Priority 5: Improve security and access control

- Year 2 actions: Continue consultation on the aged care data governance framework, align it with relevant cybersecurity policies and embed the final framework.

Priority 6: Enhance data collection and use

- Year 2 actions: Consolidate provider interactions through GPMS; release NMDS version 2 and the National Best Practice Data Set; develop NMDS version 3; expand access to the National Aged Care Data Asset; and support provider use of routine data for quality improvement.

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[20] Department of Health, Disability and Aged Care (2024). Aged Care Data and Digital Strategy: Driving better care and leading a sustainable and productive care and support economy 2024-2029. Commonwealth Government, Canberra.

[21] Department of Health, Disability and Aged Care (2026). *Action Plan Year 2, Aged Care Data and Digital Strategy* 2024-2029. Commonwealth Government, Canberra.

About the Digital Health CRC

The Digital Health Cooperative Research Centre (DHCRC) translates research into practical, scalable solutions that improve health and aged care outcomes across Australia. By bringing together government, industry, healthcare providers and universities, DHCRC accelerates the adoption of data and digital innovations, turning evidence into real-world impact through research, capability building, and commercialisation. Its collaborative approach delivers nationally recognised solutions that improve care, increase system efficiency, inform policy, and support the long-term digital transformation of health and aged care.

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