Technical Notes – Timeliness of access to aged care services, released July 2026

This technical notes section accompanies the web report Timeliness of access to aged care services in Australia. The report describes the results of analyses examining elapsed time between approval for an aged care service and receipt of that service. Analysis of elapsed time for the Commonwealth Home Support Programme (CHSP, referred to in this report as 'home support') was excluded because the focus of this analysis is on individuals with higher care needs – Home Care Packages program or permanent residential aged care. During the study period, these higher-level services were assessed and approved through comprehensive assessments for aged care services. Home support is, however, included in the report as an alternative service that people may receive while waiting for entry to home care or residential aged care services at their approved level.

The technical notes outline the data sources, analysis techniques and variables used to investigate elapsed time between approval for aged care services (a home care package, permanent residential aged care, or both) and receipt of the approved service for those undergoing their first comprehensive assessment and approval in the 2021–22 financial year. Supplementary tables and charts are provided which provide more granular results of the analyses presented in the main report.

About the data sources

This analysis uses the Pathways in Aged Care (PIAC) 2024 link map, which brings togetherinformation about individuals from different aged care data sources. This is achieved using privacy-preserving linkage techniques that assign a unique identifier for each person across data sources. The PIAC link map is a set of links to all aged care records for each person.. This allows us to construct a chronological sequence of aged care events for individuals and present a more complete picture of their aged care use, all the way from assessment and admission through to discharge and death.

The PIAC 2024 link map was used to create the following analysis data sets:

1. A recipient table with demographic data for each person.
2. An events table, including data collected during aged care assessments, data about service use (including entry and exit dates where available), and deaths.
3. A services table describing organisations providing aged care.

These tables are populated with data from:

- The National Aged Care Data Clearinghouse (NACDC, referred to in this report as 'the clearinghouse'), including assigned home care package data, aged care assessment data and aged care service use
- The National Death Index (NDI), including date and causes of death.

For more information about the PIAC link map, see the Pathways in Aged Care 2020: Technical guide.

Assigned home care package data

Assigned home care package data were sourced from the Aged Care Management Payment System. These data capture changes in home care package levels for people receiving home care service. It should be noted that the date of receipt for a first home care package or a change in home care package level in 'assigned home care package' data is based on the date when the provider was funded to deliver that level of care (recorded as the 'effective date'). It is likely that the person started receiving the home care service at any package level at a later date. This effective date was used as it is the best available proxy for the actual date of receiving a home care package.

Aged care assessment data

Assessment data used for this project were collected using the National Screening and Assessment Form (NSAF). The NSAF captures demographic factors and care needs at the time of assessment for aged care services. The data also includes approval outcomes, indicating which services the person is approved for, the date of approval, and the level of their approved service.

Box 1.1: About aged care eligibility assessments

The National Screening and Assessment Form (NSAF) was used to screen and assess a person's aged care needs up until 1 July 2024, when the Integrated Assessment Tool (IAT) was introduced as its replacement. The NSAF was introduced for aged care assessments on 1 July 2015, and full coverage was achieved in June 2016. The NSAF has 3 components:

- screening
- home support assessments
- comprehensive assessments.

Screening was conducted over-the-phone by My Aged Care contact centre staff after a person requested aged care services using My Aged Care. Contact centre staff could refer people for a home support assessment or comprehensive assessment.

Home support assessments were generally conducted face-to-face by Regional Assessment Service (RAS) assessors who provided assessment, information and advice to people requiring low level support. They assessed eligibility for the Commonwealth Home Support Programme (CHSP). RAS assessors also referred individuals for a comprehensive assessment if they recognised that they required a higher level of support.

Comprehensive assessments were conducted face-to-face by Aged Care Assessment Teams (ACATs), comprising medical, nursing and allied health professionals managed by state and territory governments. ACATs assessed eligibility for home care packages, permanent and respite residential aged care, transition care, and short-term restorative care. Approval could be given for more than one aged care service and re-assessment could occur as care needs changed.

This report only focuses on comprehensive assessment approvals for a home care package and/or permanent residential aged care.

Aged care service use data

The National Aged Care Data Clearinghouse includes information about episodes of aged care service use, including for home support (CHSP and Home and Community Care), home care packages, permanent and respite (i.e. temporary) residential aged care, transition care,

and short-term restorative care. For this report, data sourced from the clearinghouse included the start (entry) date of the service (where available) and the service type (including home care package level). For more information about the data clearinghouse, see National Aged Care Data Clearinghouse: User guide.

Deaths data

The National Death Index (NDI) is a database developed and maintained by the Australian Institute of Health and Welfare (AIHW). The NDI contains person-level records of the date of all deaths occurring in Australia since 1980 obtained from the Registrars of Births, Deaths and Marriage in each state and territory. The NDI records are supplemented with cause of death information using data linkage with the National Mortality Database.

More information about the NDI can be found on the Australian Institute of Health and Welfare website.

About the analysis design

This was a longitudinal cohort analysis examining outcomes after approval for aged care services in 2021–22. The PIAC 2024 link map and the clearinghouse were used to analyse the pathways of these people to determine whether they had received the approved service and/or alternative services in the time up to and including 30 June 2024 (the follow-up period).

Descriptive statistics were used to determine how many people received their approved aged care service (a home care package and/or permanent residential aged care) within the follow-up period. Time-to-event analysis was used to examine the demographic and clinical factors associated with elapsed time between approval for a service and receipt of that service. As there are other events that can happen instead of receiving an approved service, competing-risks regression was used for this analysis.

Analysis was undertaken in three stages, as outlined below.

Stage 1: Establishing the cohort of interest

Assessment data were taken from the NSAF, with the cohort of interest defined as anyone who had their first comprehensive assessment between 1 July 2021 and 30 June 2022, and who were approved for a home care package, permanent residential aged care, or both during that assessment. A person's comprehensive assessment was flagged as their first if they did not have a record of a prior comprehensive assessment between 1 July 1997 and 30 June 2021.

Stage 2: Assigning people in the cohort to an aged care service use outcome

Data from the clearinghouseand the National Death Index were used to determine the pathways of people after their aged care approval, including the aged care services they received and whether they died before receiving an approved service.

To enable descriptive analysis of aged care service use outcomes after approval for aged care services, outcomes were grouped into 7 mutually exclusive categories (that is, each individual was coded with only one outcome) and were assessed in order from 1 to 7. Aged care service use outcomes were identified using service use and deaths data between time of first comprehensive assessment (during 2021–2022) and 30 June 2024 for each individual in the cohort.

The aged care service use outcomes include:

1. Received the approved service at the approved level.
2. Received an ‘interim’ home care package. An ‘interim’ home care package was defined as:
    a. lower-level home care package than was approved for individuals approved for ‘a home care package only’
    b. any home care package for individuals approved for ‘permanent residential aged care only’ (they must have undertaken a further comprehensive assessment to receive approval for a home care package).
    c. lower-level home care package than was approved for individuals approved for ‘both a home care package and permanent residential aged care’.
3. Entered permanent residential aged care without receiving a home care package. This outcome was only assessed for people initially approved for ‘a home care package only’ (they must have undertaken a further comprehensive assessment to receive approval for permanent residential aged care).
4. Received home support (i.e. CHSP) but no home care package or permanent residential aged care.
5. Died without receiving a home care package, permanent residential aged care, or home support
6. Alive at 30 June 2024 without receiving a home care package, permanent residential aged care, or home support, but had a further comprehensive assessment
7. Alive at 30 June 2024 without receiving a home care package, permanent residential aged care, home support, or a further comprehensive assessment (timed out).

Further information on the aged care service use outcomes for each aged care approval group is available in Table 1.

Descriptive statistics were analysed to determine how many people received their approved aged care service or any other aged care service use outcomes within the follow-up period.

Table 1: Aged care service use outcomes for people who received first comprehensive assessment approval in 2021–22, followed up to 30 June 2024 (inclusive)

Aged care service use outcome (assessed from 1–7)	A home care package only	Permanent residential aged care only	A home care package and permanent residential aged care
1	Received a home care package at the approved level between first	Received permanent residential aged care between first comprehensive	Received a home care package at the approved level, or permanent residential aged care

Table 1: Aged care service use outcomes for people who received first comprehensive assessment approval in 2021–22, followed up to 30 June 2024 (inclusive)

Aged care service use outcome (assessed from 1–7)	A home care package only	Permanent residential aged care only	A home care package and permanent residential aged care
	comprehensive assessment (in 2021–22) and 30 June 2024 (inclusive)	assessment (in 2021–22) and 30 June 2024 (inclusive)	(whichever came first) between first comprehensive assessment (in 2021–22) and 30 June 2024 (inclusive)
2	Received a lower-level home care package than was approved between first comprehensive assessment (in 2021–22) and 30 June 2024 (inclusive)	Received a home care package at any level between first comprehensive assessment (in 2021–22) and 30 June 2024 (inclusive) (received a further comprehensive assessment to be approved for home care)	Received a lower-level home care package than was approved between first comprehensive assessment (in 2021–22) and 30 June 2024 (inclusive)
3	Received permanent residential aged care between first comprehensive assessment (in 2021–22) and 30 June 2024 (inclusive) (received a further comprehensive assessment to be approved for permanent residential aged care)	—	—
4	Received home support* at any time up	Received home support* at any time up to and	Received home support* at any time up to and

Table 1: Aged care service use outcomes for people who received first comprehensive assessment approval in 2021–22, followed up to 30 June 2024 (inclusive)

Aged care service use outcome (assessed from 1–7)	A home care package only	Permanent residential aged care only	A home care package and permanent residential aged care
	to and including 30 June 2024 (including prior to 2021–22)	including 30 June 2024 (including prior to 2021–22)	including 30 June 2024 (including prior to 2021–22)
5	Died prior to or on 30 June 2024 without receiving a home care package, permanent residential aged care or home support*	Died prior to or on 30 June 2024 without receiving a home care package, permanent residential aged care or home support*	Died prior to or on 30 June 2024 without receiving a home care package, permanent residential aged care or home support*
6	Alive at 30 June 2024 without receiving a home care package, permanent residential aged care or home support*, but received a further comprehensive assessment	Alive at 30 June 2024 without receiving a home care package, permanent residential aged care or home support*, but received a further comprehensive assessment	Alive at 30 June 2024 without receiving a home care package, permanent residential aged care or home support*, but received a further comprehensive assessment
7	Alive at 30 June 2024 without receiving a home care package, permanent residential aged care, home support*, or further comprehensive assessment	Alive at 30 June 2024 without receiving a home care package, permanent residential aged care, home support*, or further comprehensive assessment	Alive at 30 June 2024 without receiving a home care package, permanent residential aged care, home support*, or further comprehensive assessment

*Home support includes receipt of services through the Commonwealth Home Support Programme and its pre-2015 predecessor Home and Community Care (HACC).

Outcome 1 represents receiving the approved care service. Outcomes 1–4 represent receiving any care service (does not include informal care or other care types, such as transition care, short-term restorative care, multi-purpose services, and National Aboriginal and Torres Strait Islander Flexible Aged Care program).

Stage 3: Measuring elapsed time

Median elapsed times to receipt of approved service

Elapsed time between aged care assessment and outcomes were analysed and median elapsed times were reported for aged care service use outcome 1 – received the approved service at the approved level. The elapsed time was defined as the number of days from approval for a service to receipt of that service at the approved level, and months is calculated by dividing the number of days by 30.4. Median elapsed time is the length of time that falls in the middle of all elapsed times for each approval group in aged care service use outcome 1 (received the approved service at the approved level), dividing the group into two equal halves – half of the group had shorter elapsed time and half had longer elapsed time.

Some people approved for aged care services in the 2021–22 did not receive their approved aged care service but instead received an interim package, home support, a further comprehensive assessment, or died. These people were therefore not included the calculation of the median elapsed times.

Time-to-event analysis

Analysis was undertaken to identify factors associated with shorter or longer elapsed times to receipt of approved care. In this analysis, events that could occur that would preclude the person from receiving their approved care are referred to as ‘competing risk events’ (see Table 2). Time-to-event analysis was undertaken using a competing-risks regression model approach which factors in all competing outcomes. Competing-risks regression (Fine and Gray 1999) produces subdistribution hazard ratios or ‘hazard rate ratios’. These ratios are similar to the hazard ratios estimated in a Cox regression, which measure the impact of a variable on the time to an event occurring. Subdistribution hazard ratios estimate the effect of certain variables in the presence of competing risk events.

Table 2: Competing risk events for people who received first comprehensive assessment approval in 2021–22

Competing risk event (assessed from 1–4)	A home care package only	Permanent residential aged care only	A home care package and permanent residential aged care
1	Received a home care package at the approved level between first comprehensive assessment (in 2021–22)	Received permanent residential aged care between first comprehensive assessment (in	Received a home care package at the approved level, or permanent residential aged care (whichever came first) between first

Table 2: Competing risk events for people who received first comprehensive assessment approval in 2021–22

Competing risk event (assessed from 1–4)	A home care package only	Permanent residential aged care only	A home care package and permanent residential aged care
	and 30 June 2024 (inclusive)	2021–22) and 30 June 2024 (inclusive)	comprehensive assessment (in 2021–22) and 30 June 2024 (inclusive)
2	Received permanent residential aged care between first comprehensive assessment (in 2021–22) and 30 June 2024 (inclusive) (received a further comprehensive assessment to be approved for permanent residential aged care)	—	—
3	Died prior to or on 30 June 2024 without receiving a home care package at the approved level	Died prior to or on 30 June 2024 without receiving permanent residential aged care	Died prior to or on 30 June 2024 without receiving a home care package at the approved level or permanent residential aged care
4	Alive at 30 June 2024 without receiving a home care package at the approved level	Alive at 30 June 2024 without receiving permanent residential aged care	Alive at 30 June 2024 without receiving a home care package at the approved level or permanent residential aged care

In the context of this report, where the outcome of interest (receiving a care service at the approved level) is a positive outcome, (rather than a ‘hazard’) the coefficients are referred to as 'event rate ratios’ instead of ‘hazard rate ratios’.

In the analysis of the groups approved for ‘permanent residential aged care only’ and for ‘both a home care package and permanent residential aged care’, the only competing event was death.

In the analysis of the group approved for ‘a home care package only’, the competing events were death and entry into permanent residential aged care. Although there are a few exceptional cases where individuals admitted to permanent residential aged care may subsequently leave the service and receive home care, for the vast majority of cases and for almost all practical purposes, entry into residential aged care precludes the home care package outcome from occurring.

Event rate ratio

The event rate ratio indicates how many times higher the rate of an event is in one group of people with a particular characteristic than in another group without that characteristic, after adjusting for other factors in the competing-risks regression model. The size of the reported event rate ratio indicates the strength of the relationship between a variable and the rate at which services are recieved.

Because this is a subdistribution hazard ratio, it does not show the exact size of the effect of a covariate on the probability of receiving approved care service. Instead, it gives an approximate estimate. This is because the probability of one event can also be affected by changes in the rate of other competing events among people who have not yet received the approved care service during the analysis period. However, the following statements are still true when all other factors are the same:

- An event rate ratio less than 1 indicates that, compared to the reference group, the group of interest experienced longer elapsed time to receipt of the approved service
- An event rate ratio greater than 1 indicates that, compared to the reference group, the group of interest waited less time for their approved care service
- An event rate ratio of 1 indicates that there was no relationship between the variable and the time to receiving an approved care service.

So, a lower event rate ratio means a longer elapsed time to receiving care.

To aid in the interpretation of forest plots (Figure 5) the x-axis has been reversed, meaning that people who wait longer are represented by a dot to the right of the reference line, and people who waited shorter are represented by a dot to the left of the reference line.

Ninety-five per cent (95%) confidence intervals are presented to indicate the statistical precision and significance of the event rate ratios. The result may be interpreted as having a statistically significant association if this interval does not cross the value of 1.

All results presented in the report are from competing-risks regression modelling including (and controlling for) all variables in the model. Individuals were removed from the analysis where they had one or more missing data points (2.8% for those approved for ‘a home care package only’, 6.7%% for those approved for ‘permanent residential aged care only’, and 4.0% for those approved for ‘both a home care package and permanent residential aged care’).

Variables used in the analysis

Table 3 describes the variables used for the competing-risks regression analysis.

Table 3: Description of variables used in competing-risks regression analysis

No.	Variable	Variable type	Original or generated	Description
1	AIHW PPN	Character	Original from AIHW's linked aged care program IDs	An AIHW-derived project-specific person number, or person identifier. The AIHW PPNs were output alongside all linked aged care program-specific client identifiers (program IDs) to create the PIAC 2024 link map.
2	Assessment ID	Character	Original	Unique ID of an assessment in National Screening and Assessment Form (NSAF).
3	First comprehensive assessment completed date	Date	Original	The first completed date of the comprehensive assessment.
4	Entry date of service event	Date	Original	The date a person started an aged care service event (episode) including changes in home care package levels. For all services except home care packages, this date represents the actual start date of the service episode. The entry date of a home care package event is based on the date when the provider was funded to deliver that level of care. It is likely that the person started receiving the home care service or changes in home

Table 3: Description of variables used in competing-risks regression analysis

No.	Variable	Variable type	Original or generated	Description
				care package levels at a later date.
5	Approved service	Categorical	Generated	Approved service categories, including: 1. approved for a home care package only 2. approved for permanent residential aged care only 3. approved for both a home care package and permanent residential aged care.
6	Approved home care package level	Ordinal	Original	Home care package level approved in the first comprehensive assessment (where applicable).
7	Elapsed time (days)	Numeric - continuous	Generated	Number of days from the first comprehensive assessment exit date to the entry date of the approved service. Although elapsed time was calculated in days for the analysis, it was often converted to months for simplicity in reporting by dividing the calculated number of days by 30.4.

Table 3: Description of variables used in competing-risks regression analysis

No.	Variable	Variable type	Original or generated	Description
8	Waited over 6 months for an interim package or for their approved care service	Binary (Yes/No)	Generated	Whether the person waited for more than 182 days from the assessment date to the entry date of 1. receiving a lower-level home care package before receiving approved care service, or 2. receiving approved care service without receiving interim home care package, or 3. receiving interim home care package without receiving approved care service.
9	Died	Binary (Yes/No)	Original from National Death Index (interim variable)	Whether the person was recorded as died in National Death Index by 30 June 2024.
10	Aged care service use outcome	Categorical	Generated	Aged care service use outcomes (1–7) as described in Table 1.
11	Competing risk event	Categorical	Generated	Competing risk events (1–4) as described in Table 2
12	Sex	Binary (Male/Female)	Generated	Whether the person is male or female. Two individuals recorded as ‘Unknown’ were excluded.

Table 3: Description of variables used in competing-risks regression analysis

No.	Variable	Variable type	Original or generated	Description
13	Age group	Categorical	Generated	Age groups (at the first comprehensive assessment completed date) were: 50–69; 70–79; 80–89; 90 or over. People aged from 50 to 64 only included First Nations people; people aged 65 or over included both First Nations and non-Indigenous people.
14	First Nations People	Binary (Yes/No)	Original	Whether the person is First Nations (i.e. Aboriginal and/or Torres Strait Islander).
15	Culturally and linguistically diverse background	Binary (Yes/No)	Original	Whether the person was from a culturally and linguistically diverse background (based on country of birth and preferred language), as recorded by the assessor in the NSAF.
16	Born overseas	Binary (Yes/No)	Generated from 'country of birth' field	Whether the person was born outside of Australia or not, as recorded by the assessor in the NSAF.
17	MMM	Categorical	Original	Remoteness of primary address, as defined by Modified Monash Model (2019) classifications: MM 1: Metropolitan MM 2: Regional centres MM 3: Large rural towns

Table 3: Description of variables used in competing-risks regression analysis

No.	Variable	Variable type	Original or generated	Description
				MM 4: Medium rural towns MM 5: Small rural towns MM 6: Remote communities MM 7: Very remote communities.
18	MMM group categories	Num	Generated from 'MMM' field	Remoteness categories grouped into 3 groups: MM 1: Metropolitan MM 2: Regional centres MM 3–7: Rural and remote area.
19	Used aged care service before	Binary (Yes/No)	Generated	Whether or not the person had used aged care services including respite residential care, home support, home care, permanent residential aged care, short-term restorative care, or transition care program before the first comprehensive assessment completed.
20	Has informal carer	Binary (Yes/No)	Original ('Social - has help indicator' field)	Whether the person is receiving assistance from a carer, family member(s), friend(s) and/or neighbour(s) not associated with a service provider or paid service, as recorded by the assessor in NSAF.

Table 3: Description of variables used in competing-risks regression analysis

No.	Variable	Variable type	Original or generated	Description
21	Lives alone	Binary (Yes/No)	Generated from 'lives with' categorical field	Whether the person lives alone or not, as recorded by the assessor in the NSAF.
22	Priority level	Ordinal	Generated from 'priority level' for home care package and permanent residential aged care	Priority level for the highest service approved. For those approved for both a home care package and permanent residential aged care, the priority level is the priority level approved for permanent residential aged care.
23	Assessed in hospital	Binary (Yes/No)	Generated from 'assessment setting' field	Assessment setting flagged as 'hospital'; includes public and private hospitals and clinics.
24	Dementia	Binary (Yes/No)	Generated	Whether the person has dementia as indicated by the assessor in either the 'assessed health condition' or 'primary health condition' fields of NSAF (code 500–532, 542, 584). The health conditions section of the NSAF relates to the health conditions the client experiences, which have an impact on their activities of daily living and social participation.
25	Mental health condition	Binary (Yes/No)	Generated	Whether the person has a mental health condition as indicated by the assessor in

Table 3: Description of variables used in competing-risks regression analysis

No.	Variable	Variable type	Original or generated	Description
				either the ‘assessed health condition’ or ‘primary health condition’ fields of NSAF (code 540, 541, 543–582, 586-599). The health conditions section of the NSAF relates to the health conditions the client experiences, which have an impact on their activities of daily living and social participation.
26	Categories for number of health conditions	Categorical	Generated from the number of distinct health conditions counted from (i) primary health condition (up until the first comprehensive assessment) and (ii) conditions indicated in the first comprehensive assessment.	Categories generated from the number of distinct health conditions based on its distribution, including: 1. Having no or 1 condition 2. Having 2–3 health conditions 3. Having 4–5 health conditions 4. Having 6 health conditions or more. The health conditions section of the NSAF relates to the health conditions the client experiences, which have an impact on their activities of daily living and social participation.

MMM: Modified Monash Model (2019); NSAF: National Screening and Assessment Form; PPN: project-specific person number

Assessment of bias/limitations

The results of the analysis should be interpreted in the context of important methodological and data limitations.

- The National Aged Care Data Clearinghouse data are collected through information and payment systems operated by the Department of Health, Disability and Ageing, Services Australia and the Department of Social Services. The AIHW has limited capacity to independently validate data quality.
- Data included in the data clearinghouse is for government-funded aged care programs only, so some service use is not included in analysis, including privately funded in-home care or retirement villages, so some service use is not captured in our analysis.
- Demographic and clinical characteristics collected at the time of assessment may change between the assessment and the receipt of service or during program use.
- This analysis reports on the overall elapsed time from approval for a service to receipt of the service at the approved level. The data do not allow for examination of the reasons for waiting. There are many reasons for an elapsed time between approval for an aged care service and receipt of that service, including, for example, waiting for a service to become available, organising financial or guardianship arrangements necessary to accept care, or choosing not to accept care when it is offered. An individual may also be receiving services outside the scope of the PIAC 2024 link map, which cannot be included in this analysis.
- All changes in home care package levels are recorded and reflected in the 'assigned home care package' data from the Aged Care Management Payment System. However, the date of actual receipt of the first home care package or a change in home care package level may not be the same as the home care package level change 'effective date' – the date when the provider was funded to deliver that level of care. Delays may continue to occur at the provider level. Since no additional data is available, the effective date is used as the best available estimate for the actual date of receiving a home care package.
- The PIAC link map included aged care data up to 30 June 2024. We are therefore unable to examine outcomes that occurred after this date, including the impact of policy and services changes that have occurred since this time.

Abbreviations

Terms	Description
ACAT	Aged Care Assessment Team
ACMPS	Aged Care Management Payment System
AIHW	Australian Institute of Health and Welfare

Abbreviations

Terms	Description
CALD	culturally and linguistically diverse
CHSP	Commonwealth Home Support Programme
HACC	Home and Community Care
HCP	Home Care Packages [Program]
MMM	Modified Monash Model
NACDC	National Aged Care Data Clearinghouse
NDI	National Death Index
NSAF	National Screening and Assessment Form
PIAC	Pathways in Aged Care
PRAC	permanent residential aged care
PPN	project-specific person number