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Pathways through aged care services: a first look

Summary

Analysis of people's use of care services over time provides information that is useful to both policy planners and service providers alike. The Pathways in Aged Care (PIAC) study linked 2003–04 Aged Care Assessment Team (ACAT) assessment data to data sets showing use of five main aged care programs and to deaths data. The resulting linked database is a rich source for examining the diversity of client pathways through the aged care system, starting from ACAT assessment.

This bulletin presents the first results from analyses using the PIAC data, concentrating on the cohort of 77,000 people who had an ACAT assessment in 2003–04 and who had not previously used aged care services that required an ACAT assessment for access. The main findings are:

- Over half of the cohort had previously used two key community care programs that did not require an ACAT assessment (Home and Community Care and Veterans' Home Care).
- Although approval for program use from an ACAT assessment is valid for 12 months, reassessment within that period is common: nearly one-third of the cohort had a reassessment within 12 months, and half of these had no intervening program use.

(Summary continued overleaf)

Contents

bulletin 73

- Assessments do not necessarily result in use of a program: 24% of the cohort had not accessed, or re-accessed, any aged care programs within 2 years of their first assessment. One-third of these people had died.
- For some people, ACATs were acting as a conduit for information about community care programs that did not require such an assessment for access. Around one-fifth (21%) of the cohort had such programs as their first post-assessment step.
- The use of care programs increased over time, with the move to residential care being particularly noticeable: 23% of the cohort who were still alive after 6 months were in permanent residential aged care compared with 38% after 24 months.
- Some care programs can be accessed simultaneously. Six months after assessment:
  - Nearly 8% of the cohort who were still alive were recipients of a Community Aged Care Package; of these, nearly 30% were also using services from other programs.
  - Around 40% of people who were clients of Veterans' Home Care were also accessing services from the large Home and Community Care program.
  - 13% of those using Home and Community Care were also accessing other programs.
  - More than half of the people in residential respite care were accessing a community care program when they were at home.
- Within 2 years of assessment:
  - Around 13% of the cohort had accessed a Community Aged Care Package.
  - Just over 40% had been admitted to permanent residential care at least once.
  - Slightly fewer than 30% had died—19% within the first 3 months.

Introduction

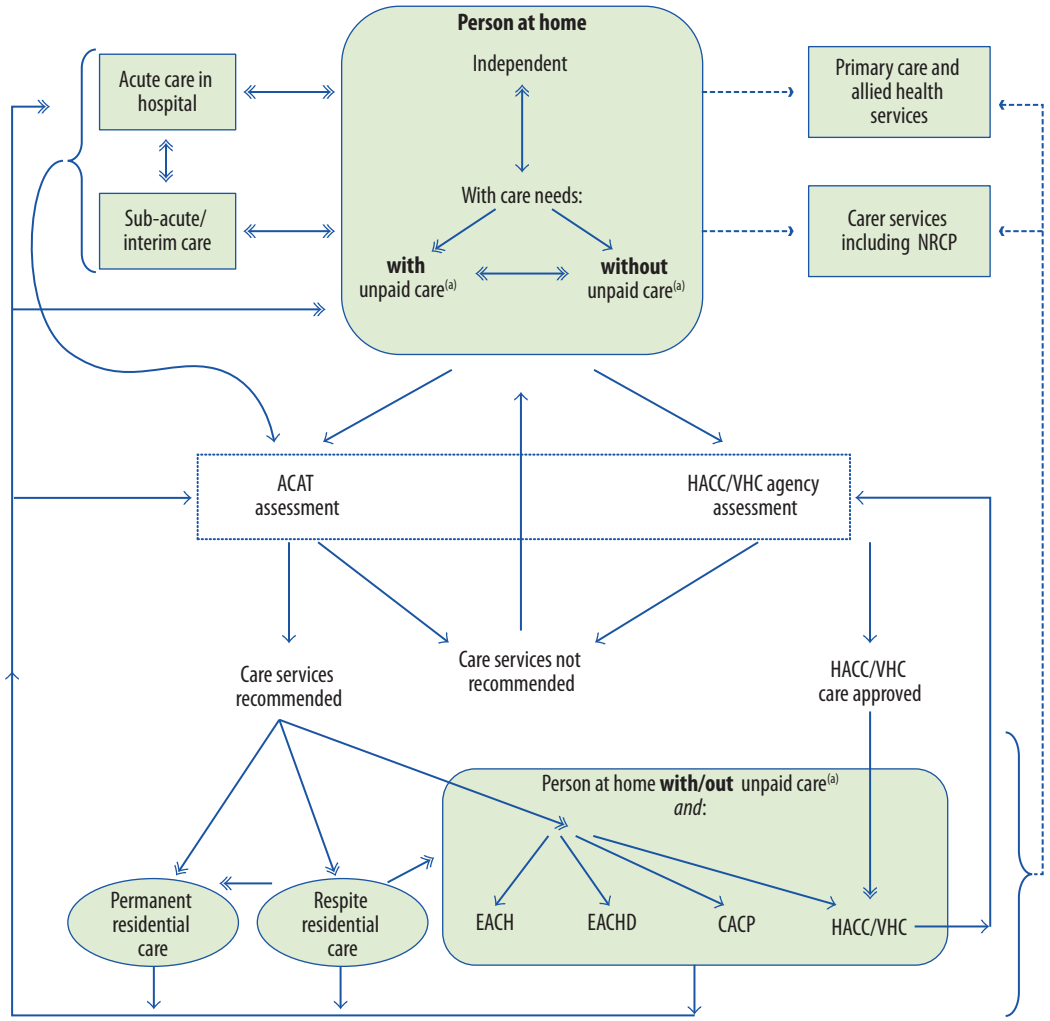
Over the last 25 years there has been a range of reforms to the aged care system. These have increasingly placed emphasis on formal assessment processes and expanded the focus of care provision from residential aged care (RAC) to providing a continuum of care, with community care being developed to both supplement and complement residential care (AIHW 2001: Chapter 6; AIHW 2007: Chapter 3). In response to expressed preferences by older people and their carers, government has developed—and continues to expand—a range of community care and information programs. By 2004 the Australian Government was funding 17 community care programs (DoHA 2004: 45, AIHW 2007: Box 3.3). Consequently, the aged care sector within Australia is very complex, with a wide range of services available to older people in need of assistance (Figure 1).

Although there has been a proliferation of programs, between 2001–02 and 2005–06 four key programs accounted for around 85% of government expenditure on community aged care programs excluding assessment services: Home and Community Care (HACC), Veterans' Home Care (VHC), Community Aged Care Packages (CACPs) and Extended Aged Care at Home (EACH) packages including EACH Dementia (EACHD) (AIHW 2007: Table 3.23).

Coordination of aged care services is important both to provide services cost-effectively and to ensure that appropriate care is provided to people when they need it. However, until recently, there has been no capacity to describe statistically how the aged care system functions as a whole (Gray 2001). Computerised person-level administrative data have been maintained for RAC and CACPs since the 1990s and administrative data have been collected for each of VHC, EACH and EACHD as they became operational. However, it wasn't until the implementation of client-level national minimum datasets (NMDSs) for HACC in 2001–02 and the Aged Care Assessment Program (ACAP) in 2003–04 (Version 2 of the NMDS) that client-level data became available for most of the main national aged care programs. Even so, the data collections for the different programs were, and are, held on different databases.

The advent of the ACAP NMDS Version 2 meant that—using statistical data linkage to link the assessment, community care and residential care data sets—it was feasible to derive a database that is suitable for analysis of care transitions and pathways through the community care and residential care sectors. In 2005, a research team centred at the Australian Institute of Health and Welfare (AIHW) successfully applied for a National Health and Medical Research Council Strategic Award to create a linked data set using data from the main aged care programs. The linked data would then allow the team to undertake analysis of pathways in aged care from the time of Aged Care Assessment Team (ACAT) assessment. The linked data derived for this project—known as the Pathways in Aged Care (PIAC) cohort study—is a rich source for examining the diversity of care pathways, in terms of the programs accessed and their use by individuals over time.

This bulletin presents initial results from analysis of the PIAC linked database, looking at people's program use over 2 years from the time of their first completed assessment by an ACAT in 2003–04.



(a) Excluding payments from government pensions and benefits.

Note: Figure includes selected government-funded programs only, for 2003 –04.

Source: Adapted from Runge et al. 2009:10.

Figure 1: Possible movements through the Australian health and aged care system (2003–04)

The PIAC project

The PIAC project relates to 105,077 people—called the PIAC cohort—who had a completed ACAT assessment in 2003–04 that was recorded on ACAP NMDS Version 2. Note that implementation of the ACAP NMDS Version 2 was done on a regional basis over several years, and for 2003–04 70% of all ACAT assessments were reported using this version (85% in 2004–05) (ACAP NDR 2005, 2006).

The PIAC cohort study linked ACAP data for the PIAC cohort to data sets showing use of CACPs, EACH and EACHD packages, HACC, VHC, and both permanent and respite RAC between 2002–03 and 2005–06 (see Box 1 for a brief description of the programs)[1]. Data on all assessments for 2003–04 and 2004–05 (and reported on NMDS Version 2) were included to allow analysis of reassessment. All data sets included dates of use so that the linked data could be used to describe program use over time. Clients were also linked to the national death register (National Death Index) to establish whether or not cohort members died within the study period and when they died.

Data linkage was undertaken using multiple deterministic match passes based on components of a common statistical linkage key, termed SLK-581 (also known as the HACC SLK), where the SLK-581 for a person is the concatenation of five letters of name, eight digit date of birth and sex (AIHW: Karmel 2005). Additional common data items (but not full name) were incorporated into the linkage algorithm to improve the accuracy and sensitivity of the linkage process. Before data linkage, ethics approval and permission to use the required data were obtained from all relevant bodies. In addition, to protect the privacy of individuals, all linkage was carried out within the AIHW using the Institute's data linkage protocol (AIHW 2006).

Before community care packages and residential aged care can be accessed, the relevant approval has to be obtained through an assessment by an ACAT. Of particular interest for pathways analysis is the smaller cohort (termed the PIAC new-pathways cohort) of 77,437 people assessed by an ACAT who had not previously used ACAT-dependent aged care services. The new-pathways cohort is the focus of this bulletin. This group can itself be divided into two: those who had previously used HACC or VHC services (which do not require an ACAT assessment), and those who had not. For brevity, this latter group is labelled the 'no previous care' group in tables and figures. Note that care provided in hospitals is not included in PIAC pathways.

1 The linked data set underestimates the use of HACC services to the extent that agency non-participation in the HACC NMDS affects service use coverage (agency participation was 82% to 83% between 2002–03 and 2005–06) (DoHA 2007a: Table A.1).

Box 1: Aged care programs included in the PIAC project

The PIAC project includes the following six aged care programs:

- Aged Care Assessment Program *(operating from 1985). Under ACAP, multi-disciplinary Aged Care Assessment Teams determine people's care needs and make recommendations concerning the preferred long-term living arrangement. In 2003–04, there were 200,165 assessments carried out under ACAP (140,279 reported on ACAP NMDS Version 2). Relevant approvals are required from an ACAT in order to access RAC, CACP and EACH(D) programs.*
- Residential Aged Care *(Commonwealth funded from 1963). RAC provides both permanent and respite care in residential aged care facilities. At 30 June 2006, there were 145,175 permanent RAC residents. In addition, 35,556 people used respite RAC during 2005–06. (ACAT approval is required to access funded places.)*
- Community Aged Care Packages *program (operating from 1992). CACPs provide support services for older people with complex needs living at home who would otherwise be eligible for admission to 'low-level' residential care. They provide a range of home-based services, excluding home nursing assistance and allied health services, with care being coordinated by the package provider. At 30 June 2006 there were 29,972 CACP recipients. (ACAT approval is required.)*
- Extended Aged Care at Home *program (operating from 2002). EACH provides care at home that is equivalent to 'high-level' residential care. At 30 June 2006, there were 1,984 EACH package recipients. (ACAT approval is required.)*
  The associated program Extended Aged Care at Home Dementia *(operational from 2006) provides a community care option specifically aimed at high-care clients with dementia and behavioural and psychological symptoms. At 30 June 2006, there were 279 EACHD package recipients. (ACAT approval is required.)*
- Home and Community Care *(operating from 1985). HACC provides a large range of services (including allied health and home nursing services) to support people at home and to prevent premature or inappropriate admission to residential care. Around 780,000 people used HACC services in 2005–06. (ACAT approval is not required.)*
- Veterans' Home Care *(operating from 2001). VHC provides a limited range of services to help veterans, war widows and widowers with low-level care needs to remain living in their own homes longer. Eligible veterans who need higher amounts of personal care than provided under VHC may be referred to the Community Nursing program (Gold or White Repatriation Health Card holders only). VHC was used by 70,997 people in 2005–06. (ACAT approval is not required.)*

The program data came from two main sources: program-specific NMDSs (ACAP and HACC) and administrative data (RAC, CACP, EACH, EACHD and VHC). Age restrictions were not applied to the data sets to allow identification of early use of aged care programs.

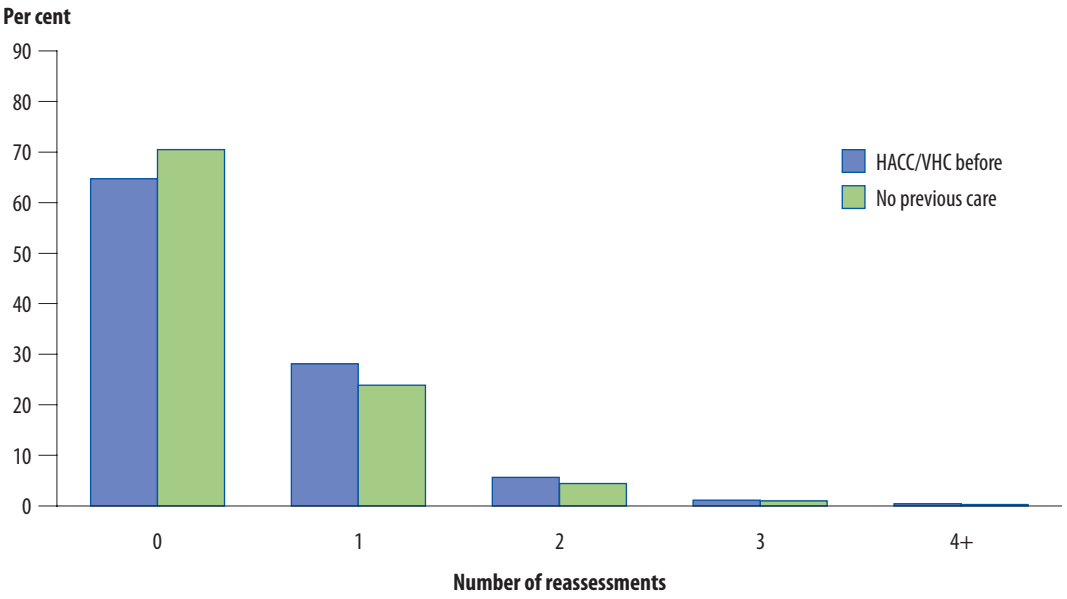
Sources: *AIHW 1993, 1999, 2001, 2003, 2005, 2007, DoHA 2007b. See AIHW 2007: Table 3.17 for types of services provided under community care programs.*

Aged care assessments

During the period covered by the study (2003–2006), approvals from ACAT assessments for all programs remained valid for 12 months. Reassessment within the 12 month period may have occurred for a number of reasons. People who wanted to make sure that they had continuous access to residential respite care would have needed to have a further assessment within the original 12-month approval period. Also, up until 30 June 2004, all permanent aged care residents required an ACAT assessment to change from low- to high-care—not just those who were changing care facilities, as was the case from 1 July 2004 (ACAP NDR 2005:173). Changes in client attitude and circumstances may also result in a new ACAT assessment within a 12 month period.

Note that, in order to improve the efficiency of the ACAT assessment process and increase access to assessments by older people, changes were implemented on 1 July 2009 so that approvals for residential respite care, high-level residential care, EACH and EACHD no longer lapse unless specified as time limited by the ACAT (DoHA 2009).

Nearly one-third of the PIAC new-pathways cohort had a reassessment within 12 months of the end of their first completed ACAT assessment in 2003–04 (called the reference assessment) (Figure 2, Table 1)[2]. People who had accessed HACC or VHC services before this assessment were more likely to have a reassessment than other cohort members (35% versus 29%); however, among those with reassessments, the average number was similar for the two groups (Table 2).



Source: Table 1.

Figure 2: Number of ACAT reassessments per person within 12 months, PIAC new-pathways cohort

2 It is estimated that between 15% and 20% of the 2003–04 new-pathways cohort had an earlier assessment in 2002–03 (based on 2003–04 and 2004–05 ACAT assessment patterns).

Overall, 25,300 cohort members together had 31,700 reassessments within 1 year of their reference assessment (Table 2). An ACAT assessment may be curtailed before completion for a number of reasons, including client withdrawal, changes in health status or death: 15% of the cohort's reassessments were incomplete in this way. In addition, for our cohort, just under 10% of additional assessments were for people already living permanently in residential care. As a result, just under one-quarter (23%) of reassessments were either incomplete or were for people already living permanently in RAC. Consequently, just over three quarters of reassessments were completed assessments for people living in the community; for a small percentage of these the ACAP client was in residential respite care at the time (3.4% out of 77.5%).

Table 1: ACAT reassessments within 12 months: number per person, PIAC new-pathways cohort

ACAT reassessments within 12 months	With HACC/VHC before	No previous care	Total	
Number per person		**Per cent**		**Number**
0	64.7	70.5	67.3	52,061
1	28.1	23.9	26.2	20,303
2	5.6	4.4	5.1	3,911
3	1.1	0.9	1.0	808
4	0.3	0.2	0.2	192
5+	0.1	0.1	0.1	73
Total	**100.0**	**100.0**	**100.0**	**..**
Total clients (number)	**42,920**	**34,428**	**..**	**77,348**
Total clients (%)	**55.5**	**44.5**	**100.0**	**..**

Notes
1. Table excludes 89 records with a pathway that indicated death before receipt of care because this implies linkage errors.
2. The reference date for additional assessments is the date of the end of the first completed assessment in 2003–04.

Table 2: ACAT reassessments within 12 months by completion status and place of assessment, PIAC new-pathways cohort

Assessment completion status and location	With HACC/VHC before	No previous care	Total	With HACC/VHC before	No previous care	Total
Completed	**Number of additional assessments**			**Per cent**		
In residential aged care	*2,218*	*1,323*	*3,541*	*11.6*	*10.5*	*11.2*
In permanent care	1,556	916	2,472	8.1	7.3	7.8
In respite care	662	407	1,069	3.5	3.2	3.4
Not in residential aged care	13,987	9,533	23,520	73.2	75.5	74.1
Total	*16,205*	*10,856*	*27,061*	*84.9*	*86.0*	*85.3*
Incomplete						
In residential aged care	*472*	*219*	*691*	*2.5*	*1.7*	*2.2*
In permanent care	349	175	524	1.8	1.4	1.7
In respite care	123	44	167	0.6	0.3	0.5
Not in residential aged care	2,421	1,548	3,969	12.7	12.3	12.5
Total	*2,893*	*1,767*	*4,660*	*15.1*	*14.0*	*14.7*
Total	**19,098**	**12,623**	**31,721**	**100.0**	**100.0**	**100.0**
Total (row %)	**..**	**..**	**..**	**60.2**	**39.8**	**100.0**
Clients	**15,135**	**10,152**	**25,287**	**59.9**	**40.1**	**100.0**
Average number per person	**1.26**	**1.24**	**1.25**	**..**	**..**	**..**

Notes
1. Table excludes 89 records with a pathway that indicated death before receipt of care because this implies linkage errors.
2. The reference date for reassessments is the date of the end of the first completed ACAT assessment in 2003–04.

Among all people who had a reassessment within 12 months, the first event in their care pathway after the first completed assessment in 2003–04 was commonly a further ACAT assessment (almost 50%). This suggests either a change in circumstances or a change in attitude since their earlier assessment (Table 3).

Although a further assessment was very common, for those people with a reassessment who had not previously used HACC or VHC services, the most common event after their assessment was use of these services (43%). This is evidence that some people were being directed towards these community care services by the ACATs even though these programs could be accessed without an ACAT assessment. Further evidence of this is seen in the common care pathways discussed later. This pattern may result from a combination of factors related to knowledge of the service system and eligibility criteria for care packages. For example, potential clients—or those who refer people to aged care services—may not be sure about the various services available or how to access them, and so approach an ACAT. In addition, ACATs must ensure that certain requirements are met before approving use of care packages. In particular:

- the ACAT should only approve the use of a package if the client meets the eligibility criteria. To be eligible for a package, a person must be eligible to receive residential care at least at the low level of care and have complex care needs that can only be met by a coordinated care package of care services (DoHA 2006: Section 5.6).

- the ACAT should take into account the availability of services (AIHW 2002:101, 103). Limited availability of packages in some areas may therefore have resulted in recommending other community care services to clients (ACAP NDR 2005).

Another relatively common event was the use of respite RAC (9% and 16%, respectively, for the two groups), reflecting the 12-month limit on the currency of an ACAT approval.

Table 3: First care pathway event for cohort members with reassessments within 12 months, PIAC new-pathways cohort

First event	With HACC/VHC before	No previous care	Total
		Per cent	
Incomplete ACAT	8.1	5.7	7.1
Completed ACAT	47.1	33.5	41.6
HACC	12.2	40.8	23.7
VHC	1.8	1.9	1.8
CACP	8.4	4.1	6.7
EACH(D)	0.2	0.1	0.2
Respite RAC	16.3	9.1	13.4
Permanent RAC	5.9	4.9	5.5
Total	**100.0**	**100.0**	**100.0**
Total number	**15,135**	**10,152**	**25,287**

Notes
1. Table excludes 89 records with a pathway that indicated death before receipt of care because this implies linkage error.
2. The reference assessment is the first completed ACAT assessment in 2003–04.
3. An ACAT assessment may end before completion due to a number of reasons, including client withdrawal, changes in medical condition and death.

Common care pathways

People access services to suit their particular circumstances, and so patterns of service use are diverse. Variation includes which programs are accessed, how often they are used and the timing of use. Among the full PIAC cohort of 105,000 people, over five program access events were commonly identified for a client from the linked data. A small number had over 25 distinct periods of program use identified over the 2-year study period (predominantly regular residential respite care). The occurrence of large numbers of events, combined with the variety of care programs available, means that there are many thousands of different care pathways.

As illustrated in Figure 3, different approaches can be used to examine pathways. For example, looking at the order of program access events and death, but without considering timing, the 77, 400 people in the PIAC new-pathways cohort had 9,200 distinct pathways following their reference assessment (approach A in Figure 3 and Table 4). If the use of HACC or VHC services before the reference assessment is also considered, this number increases to 10,743.

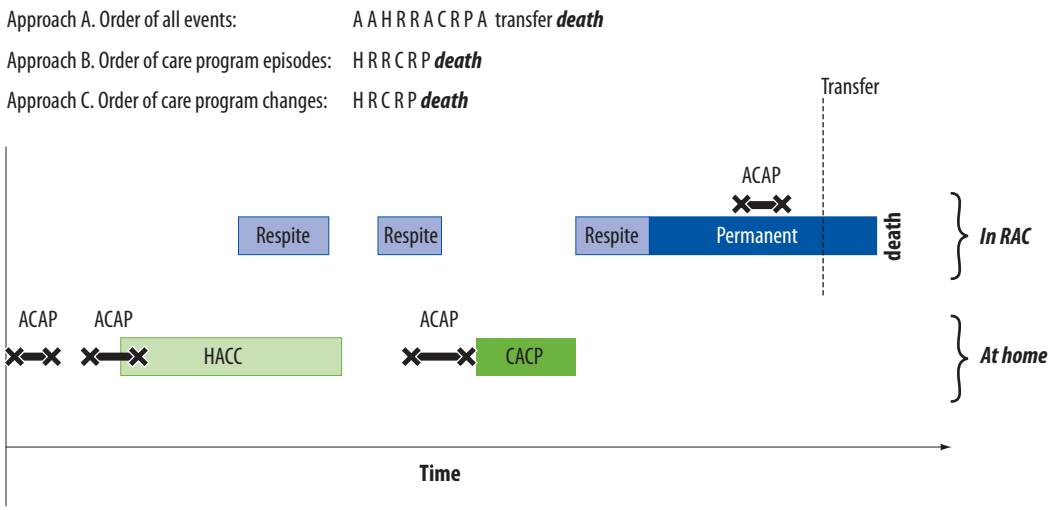


Figure 3: Example of a person's aged care pathway, starting from the ACAT reference assessment

The multiplicity of care pathways makes it difficult to identify common patterns. To overcome this, one approach is to consider the order in which people access, or re-access, care programs. For such an analysis, the picture can be simplified by excluding ACAT assessments because these enable access to services rather than provide assistance. Also, within-program transfers do not indicate new access or re-access to a care program, and so could be excluded. Taking this approach, cohort members had 2,030 different program-use pathways—including those ending in death—over the 2 years following the end of the reference ACAT assessment (approach B in Figure 3 and Table 4). This number increases to 2,619 if the use of HACC or VHC services before that assessment is taken into account.

People can access the same care program several times in a row (e.g. have regular periods in residential respite care). Changes in the care programs being accessed over time can be examined by ignoring such repeat use of a program when there has been no intervening use of a different program. Considering only these changes, there were 1,003 distinct care pathways over the 2-year window among the new-pathways cohort (1,358 allowing for use of HACC or VHC services before the reference assessment) (approach C in Figure 3 and Table 4).

Table 4: Distinct aged care pathways over 2 years after reference ACAT assessment, PIAC new-pathways cohort (number)

Approach to counting distinct pathways	With HACC/VHC before	No previous care	Total	Ignoring early HACC/VHC use
A. Pathways showing all program use.	5,933	4,810	10,743	9,200
Pathway description includes:				
• all episodes of care program use				
• all ACAT assessments				
• all with-in program transfers				
• death				
B. Pathways showing care program use.	1,361	1,258	2,619	2,030
Pathway description includes:				
• all episodes of care program use				
• death				
Pathways exclude:				
• ACAT assessments				
• with-in program transfers				
C. Pathways showing care type changes.	686	372	1,358	1,003
Pathway description includes:				
• changes in care program use				
• death				
Pathways exclude:				
• ACAT assessments				
• with-in program transfers				
Pathways ignore:				
• multiple program use when there has been no intervening use of another program.				

Notes
1. Table excludes 89 records with a pathway that indicated death before receipt of care because this implies linkage errors.
2. Changes in HACC and VHC use before the first completed ACAT assessment are not considered.
3. Completed pathways (i.e. those ending in death) are distinguished from those still ongoing after 2 years.

Although there were many different care pathways, a relatively small set was used by a large proportion of the cohort. Looking at the first three care types accessed after the reference ACAT assessment (i.e. using approach C in Table 4), 14 paths were used by 82% of cohort members (Table 5).

Overall, the most common path was the 'no change' path: 16% of the cohort were still alive 2 years after the reference ACAT assessment and had not accessed any care programs in that time (path 1 in Table 5). However, almost half (48%) of these clients had already accessed HACC or VHC services before their reference ACAT assessment, and use of these programs may have continued. Other paths used by relatively large numbers included using only permanent residential care (paths 2 and 4—accounting for 23% of the cohort, 40% of whom died), and only accessing HACC or VHC services (paths 3 and 8—accounting for 14%, including those who died). Eight per cent of the cohort died before accessing any program services; however, two-thirds of these people had accessed HACC or VHC services before their ACAT assessment (path 5).

Highlighting the importance of community care in aged care pathways, use of either HACC or VHC was the first step in five of the 14 most common pathways. These five paths were used by 21% of the cohort (paths 3, 8, 9, 12 and 13). These findings again show that, in many cases in 2003–04, ACAT teams seemed to be acting as a conduit for information about these programs even though an ACAT approval was not required for access.

An indication that respite RAC is also an integral part of the aged care system is shown by its appearance in four of the top 14 pathways, with these paths being used by 13% of the cohort (paths 6, 10, 11 and 12). Pathways incorporating respite RAC were more common among those who had accessed HACC or VHC before the reference assessment (16%) than among those who had not (10%). Use of respite care was often followed at a later date by admission into permanent residential care (paths 6, 11 and 12).

Table 5: First three changes in care pathways over 2 years after reference ACAT assessment, PIAC new-pathways cohort

				Proportion with path (%)				
Path no.	First change	Second change	Third change	With HACC/ VHC before	No previous care	All	Total number with path	Per cent with HACC/VHC before[(a)]
1	—	—	—	14.0	18.6	16.0	12,380	48.4
2	Perm. RAC	—	—	13.9	11.3	12.8	9,865	60.4
3	HACC/VHC	—	—	8.9	14.8	11.5	8,893	42.9
4	Perm. RAC	Death	—	10.4	7.4	9.1	7,028	63.8
5	Death	—	—	9.6	6.0	8.0	6,190	66.4
6	Resp. RAC	Perm. RAC	—	7.3	3.7	5.7	4,396	70.9
7	CACP	—	—	3.6	2.3	3.0	2,313	65.9
8	HACC/VHC	Death	—	1.8	4.2	2.9	2,228	35.5
9	HACC/VHC	Perm. RAC	—	1.9	4.0	2.8	2,196	37.9
10	Resp. RAC	—	—	3.4	1.6	2.6	2,002	71.9
11	Resp. RAC	Perm. RAC	Death	3.2	1.5	2.5	1,912	72.9
12	HACC/VHC	Resp. RAC	Perm. RAC	1.6	3.6	2.5	1,911	35.3
13	HACC/VHC	Perm. RAC	Death	0.9	2.1	1.4	1,080	34.2
14	CACP	HACC/VHC	—	1.8	0.6	1.3	1,013	78.1
	All other paths			*17.8*	*18.3*	*18.0*	*13,941*	*54.7*
	Total			**100.0**	**100.0**	**100.0**	**77,348**	**55.5**
	Number of distinct paths used			**123**	**113**	**132**	..	..

(a) For some people access to HACC/VHC may have continued after the reference ACAT assessment.

Notes
1. Table uses pathway definition C in Table 4.
2. Table excludes 89 records with a pathway that indicated death before receipt of care because this implies linkage errors.
3. Changes in HACC and VHC use before the first completed ACAT assessment are not considered. All ACAT assessments, transfers due to a change in service provider and multiple program use when there has been no intervening use of another program are also not considered.
4. HACC and VHC are combined for this table because VHC delivers a subset of the HACC service types.
5. Completed pathways (i.e. those ending in death) are distinguished from those still ongoing after 2 years.

Time from assessment to program use

Data from the PIAC cohort allows us to examine if and when cohort members used care services after their reference ACAT assessment; that is, to look at the time taken for the 'care journey'. The time from assessment to first use of two key ACAT-dependent programs—CACPs and permanent RAC—is explored below.

In this analysis, use of particular services is considered for all cohort members, including those who did not access services for which they were approved and those who may not have originally been given approvals for some services[3]. Consequently, we are examining elapsed time from the reference assessment to program use, and not elapsed time from the ACAT approval for use of a particular program. The resulting measure is different from waiting time, because ideally a measure of waiting time would include only people with a particular approval and would exclude periods in which factors other than service availability affected the take-up of services. Such factors include an unwillingness to use particular service providers, changes in social or health circumstances and death of the potential client.

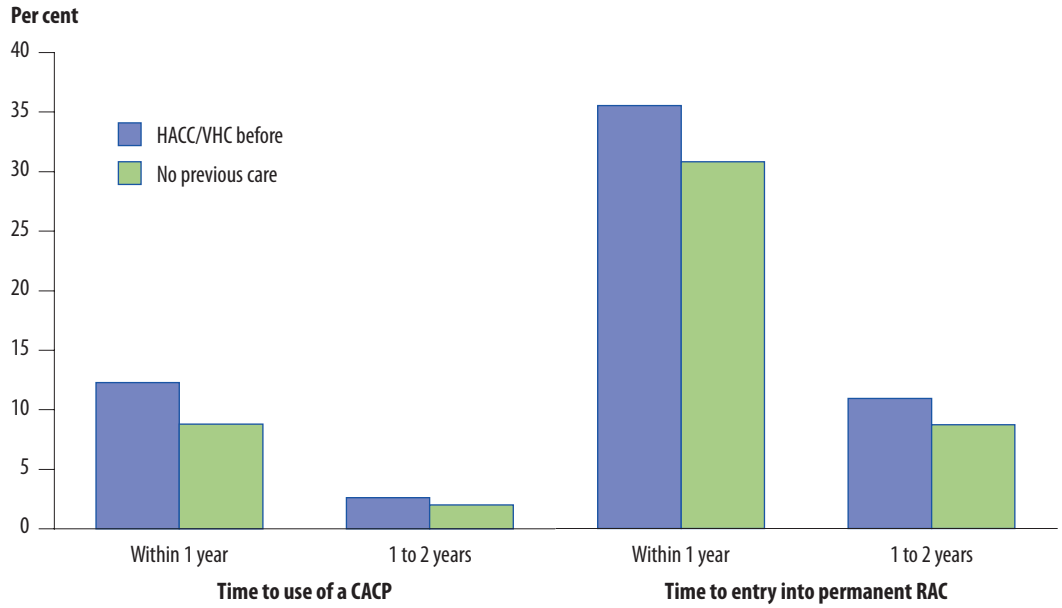
Nearly 11% of the new-pathways cohort had accessed a CACP within 1 year of their reference ACAT assessment, with a further 2% taking up a package in the following year (Table 6). People who had previously used HACC or VHC services were more likely to take up a community care package than those who had not: 12% within a year versus 9% (Figure 4). For both groups, just under 60% of take-up happened within 3 months of the reference assessment.

Among the PIAC new-pathways cohort, moves into permanent RAC were more common than starting on a CACP because of the much larger size of the RAC program (Box 1). Around one-fifth (19%) of the new-pathways cohort were admitted to permanent residential care (including low-level care) within 91 days of their reference ACAT assessment and one-third (33%) within 1 year. This included some people who may not have been approved for such care at their reference assessment but who were later reassessed (Table 6). Overall, 43% were admitted to permanent residential care at least once within 2 years of their reference assessment. Again, people who had not previously used HACC or VHC services were less likely to have had an admission than those who had used these services—at both the 1-year and 2-year points (40% versus 46% within 2 years) (Figure 4).

The above results seem counter-intuitive, with earlier use of community care services apparently leading to earlier use of a CACP or admission into permanent residential care. However, analysis indicates a younger age profile among people who had not previously accessed HACC or VHC. In addition, people who had not previously accessed these programs seemed to have fewer care needs, as on average they had fewer health conditions and slightly fewer limitations in activities of daily living. Furthermore, the tendency seen

3 The data reported here include clients who did not access services and thus are not comparable with those reported in SCRGSP 2009.

above for an ACAT assessment to provide a pathway into HACC (and, to a lesser extent, VHC) suggests that people who had not previously accessed these programs were not as advanced along their care needs pathways as those who had, and so would be expected to have longer periods before using ACAT-dependent care programs.



Source: Table 6.

Figure 4: Time after the reference ACAT assessment to use of a CACP or entry into permanent care

Table 6: Time to use of ACAT-dependent programs, PIAC new-pathways cohort (per cent)

Time after completion of reference ACAT assessment	Started on a CACP			Admitted into permanent RAC		
	With HACC/ VHC before	No previous care	All	With HACC/ VHC before	No previous care	All
Within 91 days	7.2	5.0	6.2	19.6	18.4	19.1
92–183 days	2.6	1.9	2.3	7.1	5.5	6.4
184–274 days	1.4	1.2	1.3	4.8	4.0	4.4
275–365 days	1.1	0.7	0.9	3.9	3.0	3.5
Within 1 year	*12.3*	*8.8*	*10.8*	*35.5*	*30.8*	*33.4*
366–456 days	0.8	0.6	0.7	3.4	2.6	3.0
457–548 days	0.7	0.6	0.6	2.8	2.4	2.6
549–639 days	0.5	0.4	0.5	2.5	2.0	2.3
640–730 days	0.6	0.4	0.5	2.3	1.8	2.1
1 to 2 years	*2.6*	*2.0*	*2.3*	*10.9*	*8.7*	*9.9*
Within 2 years	*14.9*	*10.8*	*13.1*	*46.4*	*39.5*	*43.3*
No event	85.1	89.2	86.9	53.6	60.5	56.7
Total	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**
Total (people)	**42,920**	**34,428**	**77,348**	**42,920**	**34,428**	**77,348**

Notes
1. Table excludes 89 records with a pathway that indicated death before receipt of care because this implies linkage errors.
2. The reference date is the date of the end of the first completed ACAT assessment in 2003–04.

Use of care programs over time

Linking program data that includes information on dates of program use allows us to look both at changes in use of care programs over time and at concurrent use of programs. Table 7 shows the care status of the new-pathways PIAC cohort 6 months and 2 years after the end of the first 2003–04 completed ACAT assessment, excluding those who had died in the meantime.

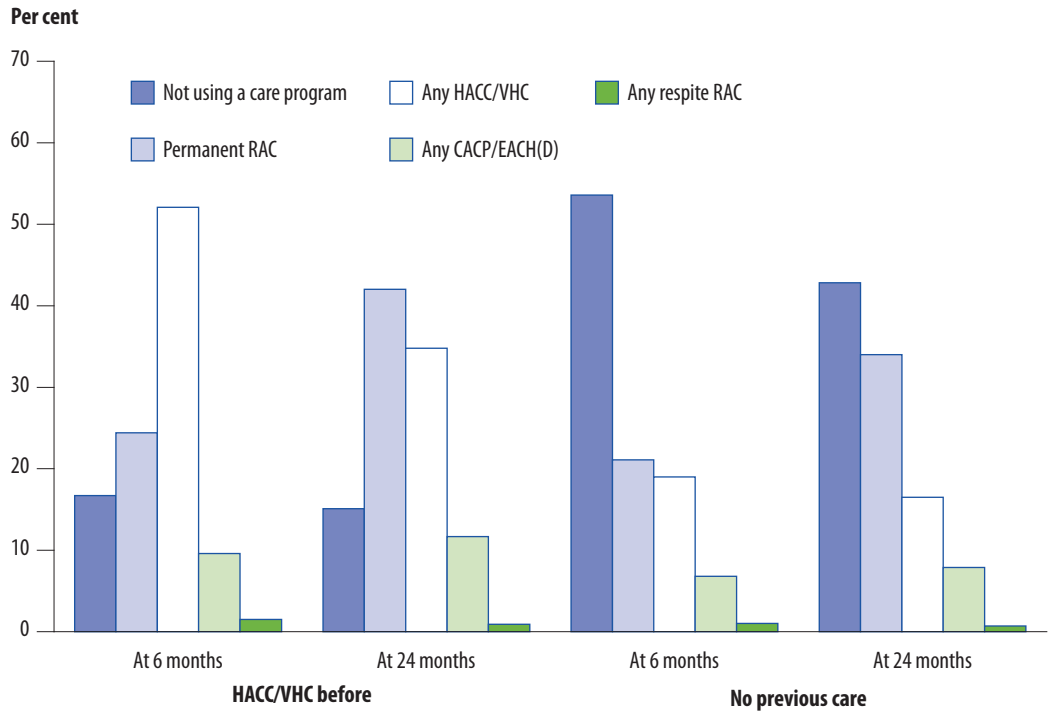
As expected, the use of care programs increased over time, with the move to permanent RAC being particularly noticeable: 23% of clients who were still alive after 6 months were in permanent RAC compared with 38% of those still alive after 24 months. However, one-third of the cohort who were still alive after 6 months after the reference assessment were not accessing a care program, with this percentage dropping a little to 28% after 24 months. This fall was mostly due to an increase in service use among people who had not accessed HACC or VHC before the ACAT assessment: over half (54%) of this group were not using a care program after 6 months, compared with 43% after 24 months (Figure 5). In both groups, the increase in use of permanent RAC was accompanied by relative decreases in the use of respite RAC, VHC and, more noticeably, HACC. By contrast, the proportion accessing the CACP or EACH programs increased with time.

People who are recipients of a CACP can access HACC at the same time, in particular for nursing and allied health services. Six months after assessment, nearly 8% of the cohort who were still alive were recipients of a CACP; of these, 28% were also accessing HACC

services. A similar pattern was seen 24 months after assessment. Reflecting the more limited nature of VHC, overlap between VHC and HACC was also quite common, with around 40% of people who were VHC clients at the 6 month point also accessing HACC services. On the other hand, a relatively small proportion of people using the large HACC program were also accessing other services: 13% of those using HACC were also accessing other programs 6 months after the reference assessment.

Although use of respite RAC was among the first three care types used for over 13% of the new-pathways cohort, at any one time few were using this service. This reflects its short-term nature. At both the 6 month and 24 month points after assessment, under 1.5% of people were accessing residential respite care (1.2% and 0.8% of those still living, respectively). More than half of these were accessing a community care program when they were at home.

Just under-one fifth (19%) of the cohort died within 1 year of the reference assessment, and another 11% died the following year (Table 8). Slightly more than one-quarter of deaths happened within 3 months of the assessment. Relatively more people died among the group of people who had used HACC or VHC services before their reference assessment than among those who had not.



Source: Table 7.

Figure 5: Program use at 6 and 24 months after assessment (per cent, excluding deaths)

Table 7: Concurrent use of care programs at specified times after assessment, PIAC new-pathways cohort (percentage of clients alive at the time)

	6 months after assessment			24 months after assessment		
Programs being used	With HACC/ VHC before	No previous care	Total	With HACC/ VHC before	No previous care	Total
Not using a care program	16.7	53.6	33.3	15.1	42.8	28.0
HACC only	40.8	16.2	29.7	25.7	13.2	19.8
VHC only	4.1	1.1	2.8	3.0	1.2	2.1
HACC and VHC only	3.0	0.4	1.8	1.9	0.4	1.2
CACP only	6.0	5.4	5.7	7.2	5.9	6.6
CACP and HACC/VHC only	3.1	1.0	2.2	3.6	1.4	2.6
EACH(D) only	0.3	0.2	0.2	0.6	0.4	0.5
EACH(D) and HACC/VHC only	—	—	—	0.1	0.1	0.1
Respite RAC only	0.4	0.6	0.5	0.2	0.3	0.3
Respite RAC and HACC/VHC only	0.9	0.3	0.6	0.5	0.2	0.4
Respite RAC and CACP/EACH(D) only	0.1	0.1	0.1	0.1	0.1	0.1
Respite RAC, CACP/EACH(D) and HACC/VHC	0.1	—	—	0.1	—	0.1
Permanent RAC only	24.4	21.1	22.9	42.0	34.0	38.2
Total	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**
Number alive in group at time	**37,358**	**30,610**	**67,968**	**29,055**	**25,331**	**54,386**
Subtotals						
HACC and/or VHC only	48.0	17.7	34.3	30.5	14.8	23.2
Any HACC	47.8	17.9	34.3	31.6	15.3	24.0
Any VHC	7.4	1.5	4.7	5.1	1.7	3.5
Any HACC/VHC	52.1	19.0	37.2	34.8	16.5	26.3
Any CACP	9.3	6.4	8.0	11.0	7.4	9.3
Any EACH(D)	0.3	0.2	0.3	0.7	0.5	0.6
Any respite RAC	1.5	1.0	1.2	0.9	0.7	0.8
Deaths up until time	**5,562**	**3,818**	**9,380**	**13,865**	**9,097**	**22,962**
Group total at start of reference assessment	**42,920**	**34,428**	**77,348**	**42,920**	**34,428**	**77,348**

Notes

1. Table excludes 89 records with a pathway that indicated death before receipt of care because this implies linkage errors.
2. HACC and VHC are combined for this table because VHC delivers a subset of the HACC service types.
3. EACH and EACHD are combined for this table because of the small numbers of clients using these programs in the study period. A very small number of people were also identified as using the nascent Transition Care Program 2 years after the reference assessment.
4. The reference date is the date of the end of the first completed ACAT assessment in 2003–04.
5. Use of community care services (HACC/VHC) while on social leave from permanent RAC is not included in the analysis. HACC services that can be accessed while on a CACP include nursing, allied health services and centre-based day care. Only the latter can be accessed by recipients of EACH(D) packages. HACC use data have been edited to reflect these access rules.
6. Percentages are based on clients alive at the time of measuring care status. Percentages may not sum to 100 owing to rounding.

Table 8: Time to death after the reference assessment, PIAC new-pathways cohort (per cent)

	Proportion who died (%)		
Time after completion of reference ACAT assessment	With HACC/VHC before	No previous care	All
Within 91 days	8.2	7.4	7.8
92–183 days	4.9	3.8	4.4
184–274 days	3.9	3.1	3.5
275–365 days	3.4	2.7	3.1
Within 1 year	*20.4*	*16.9*	*18.8*
366–456 days	3.2	2.5	2.9
457–548 days	3.0	2.4	2.7
549–639 days	2.9	2.3	2.6
640–730 days	2.9	2.3	2.7
1 to 2 years	*12.0*	*9.5*	*10.9*
Within 2 years	*32.4*	*26.5*	*29.7*
Still alive after 2 years	67.6	73.5	70.3
Total	**100.0**	**100.0**	**100.0**
Total (people)	**42,920**	**34,428**	**77,348**

Notes
1. Table excludes 89 records with a pathway that indicated death before receipt of care because this implies linkage errors.
2. The reference date is the date of the end of the first completed ACAT assessment in 2003–04.

Acknowledgments

Authorship

The authors of this report were Rosemary Karmel and Phil Anderson of the Data Linkage Unit and Ann Peut of the Ageing and Aged Care Unit at the Australian Institute of Health and Welfare.

Contributors

Diane Gibson (University of Canberra) and Ann Peut (AIHW) designed the PIAC study. Stephen Duckett (University of Queensland) provided advice on research design, particularly in relation to maximising policy relevance. Yvonne Wells (La Trobe University) provided advice on the interpretation and use of the ACAP NMDS. Rosemary Karmel (AIHW) was the principal developer of the linkage strategy and undertook the data linkage. Phil Anderson (AIHW) provided statistical advice on developing the linkage strategy. Evon Bowler (AIHW) prepared the VHC data for inclusion in the care pathways.

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Abbreviations

ACAP	Aged Care Assessment Program
ACAT	Aged Care Assessment Team
AIHW	Australian Institute of Health and Welfare
CACP	Community Aged Care Package
DoHA	Department of Health and Ageing
EACH	Extended Aged Care at Home
EACH(D)	EACH and/or EACHD
EACHD	Extended Aged Care at Home Dementia
HACC	Home and Community Care
NMDS	National Minimum Data Set
PIAC	Pathways in Aged Care
RAC	Residential Aged Care
SLK	statistical linkage key
SLK-581	statistical linkage key derived from the concatenation of five letters of name, eight digit date of birth and sex
VHC	Veterans' Home Care

Symbols used in tables

—	nil or rounded to zero
. .	not applicable

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