WELFARE DIVISION WORKING PAPER
NUMBER 3

Changing Patterns of Residential Care 1985 to 1992
Supply and Utilisation

Diane Gibson, Zhibin Liu and Ching Choi

AUSTRALIAN INSTITUTE OF
HEALTH & WELFARE
December 1993

Changing Patterns of Residential Care 1985 to 1992

Supply and Utilisation

Abstract

Australian aged care services have undergone a series of substantial reforms in recent years under the rubric of the Aged Care Reform Strategy. Overall, there has been a progressive refinement of the targeting of available services on those most in need, defined in terms of both disability levels and financial resources. A key component of this process have been the progressive reduction of nursing home bed provision ratios, accompanied by increases in the resources being directed toward hostel type accommodation and community based services. This paper aims to provide a more sophisticated understanding of the impacts of these changing patterns of residential care. A decomposition analysis suggests that the proportion of aged persons in nursing homes has decreased substantially in Australia over the period under study, and that those decreases have been most marked amongst women. These findings raise policy questions about the appropriateness of current and future levels of provision.

Introduction

Australian aged care services have undergone a series of quite radical reforms in recent years. In 1985 the Nursing Homes and Hostels Review initiated a process of change which has been sustained into the early 1990s under the rubric of the Aged Care Reform Strategy. Overall, there has been a progressive refinement of the targeting of available services on those most in need, defined in terms of both disability levels and financial resources. Key components of this process have been the progressive reduction of nursing home bed

provision ratios, a modest increase in hostel place provision ratios, increases in the range and level of domiciliary services, the development and extension of assessment procedures to increase the appropriateness of service use, modifications to the approval processes for new beds/places to facilitate accessibility in geographic terms, and the restructuring of the funding mechanisms for residential care to more accurately reflect the different costs of varying levels of dependency and associated care needs amongst residents. Recent changes to eligibility requirements have meant that for hostel residents, certain aspects of provision are now subject to a means or assets test. Domiciliary services have generally included some component of means testing, but nursing home care remains free of means or assets testing at this point in time.

Other important elements of the reform have included improving the assistance available to carers of the disabled aged, and developing training programs to increase the skill and knowledge of paid staff working in aged care. Specific programs and interventions aimed at special needs groups such as the ethnic aged, Aboriginal and Torres Strait Islander aged persons, those in rural and remote communities, and the demented aged have been developed. Australia has put in place a regulatory program for residential care which compares favourably with those available overseas (Braithwaite, Makkai, Braithwaite and Gibson, 1993), and a series of initiatives concerning the rights of aged service consumers (Gibson, Turrell and Jenkins, 1993).

This progressive targeting of aged care services on those most in need via a combination of service restructuring, assessment procedures and financial eligibility requirements is consistent with other social policy changes made by the Commonwealth Labour Government over the last decade. The strategy of narrower targeting combined with more adequate levels of provision, initiated by the Social Security Review, is one which has been successfully employed by the government with regard to social security payments (Gibson, 1990, Harding

and Mitchell, 1992).The concern addressed in this paper is not with the general strategy of concentrating available services on those most in need. It is the issue of available services per se which is in question; or more specifically the reduction in existing levels of residential care provision over recent years, and its consequences for the amount of care available to the frail and disabled aged.

The Provision of Residential Aged Care

Levels of residential care have traditionally been reported in Australia in terms of the number of beds or places per thousand aged persons, as well as in terms of the absolute number of places. Essentially, the former figure is akin to a per capita calculation, taking into account both the numbers of places provided and the likely level of need in terms of numbers of aged persons. In recent years these ratios have been expressed in terms of the numbers of persons aged 70 and over.

Until the early 80's, the ratio was expressed in terms of persons aged 65 and over; it was the Macleay committee which was instrumental in effecting the change to the 70 and over planning ratio (House of Representatives Standing Committee on Expenditure, 1982). A major argument in favour of the shift was the prevailing pattern of use; institutionalisation rates were very low amongst the 65 to 69 age group. In the late 1970s, the proportion of this age group in nursing homes was less than 1 per cent (Howe and Preston, 1985:47). The 70 and over planning ratio was put forward as a more accurate indicator of the need for residential care amongst the aged population, and has since become firmly embedded as the key indicator of residential care provision.

Levels of residential care, measured in terms of the number of places per thousand persons aged 70 and over, declined from 99 places in 1985 to 94 places in 1992. This overall reduction of five beds per thousand comprised a decrease in the nursing home bed ratio (-11) and an increase in the hostel ratio

(+6). This change is, of course, consistent with the policy directions set by the Commonwealth government to decrease the nursing home bed ratio to 40 beds per thousand, and to increase hostel places to 52.5 places per thousand persons aged 70 and over.

While the 70 and over planning ratio probably remains the most useful single indicator for planning purposes, the data described in this paper suggest that the recent ageing of the population and changing levels of handicap among the old complicate the use of any single age-based indicator for the purpose of adequately assessing changing levels of residential care provision over time.

Population Ageing

The numbers of people aged 65 and over increased by 24 per cent from 1985 to 1992, in contrast to a general Australian population increase of 11 per cent. But this recent ageing of the Australian population involves not only an increase in the total numbers of aged persons, or in their proportion relative to the rest of the population, but also changes in the age structure of the aged population. Owing to variations in the size of consecutive cohorts, there are significant variations in the rates of increase within the aged population itself.

The rate of increase between 1985 and 1992 for those aged 65 to 69 was 24 per cent, for those aged 70 to 74, 15 per cent, for the 75 to 79 year olds 26 per cent, for the 80 to 84 year olds 34 per cent, and for those 85 and over, 35 per cent. Thus, the older age groups (80 and over) have increased at a markedly higher rate than the younger (65 to 79), leading to a disproportionate increase in that section of the aged population who are heavy users of residential care. As is evident from Table 1, trends in the total numbers of persons aged 70 and over during such periods conceal the more rapid increase in those aged 80 and over, rendering the 70 and over planning ratio insensitive to a potentially higher level of demand for institutional care.

Table 1: *Changes in the age and sex structure of the population 65 and over (1985 to 1992)*

Sex/Age	Percentage distribution 1985	Percentage distribution 1992	% change 85-92
Males			
65-69	37.3	37.7	28.0
70-74	30.1	27.7	16.6
75-79	18.5	18.8	28.5
80-84	9.3	10.2	39.4
85+	4.8	5.5	47.6
Total	100.0	100.0	26.7
Females			
65-69	31.1	30.9	20.6
70-74	27.6	25.6	13.0
75-79	19.6	20.1	24.7
80-84	12.3	13.3	31.3
85+	9.4	10.2	30.8
Total	100.0	100.0	21.6
Persons			
65-69	33.7	33.8	24.1
70-74	28.6	26.5	14.6
75-79	19.1	19.5	26.2
80-84	11.0	12.0	34.2
85+	7.5	8.2	35.3
Total	100.0	100.0	23.7

Sources:

ABS 1987, Estimated resident population by sex and age: States and Territories of Australia June 1981 to June 1987, ABS Cat No. 3201.0, ABS, pp17-19

ABS 1993, Estimated resident population by sex and age: States and Territories of Australia June 1987 to June 1992, ABS Cat No. 3201.0, ABS, pp34-38

Levels of Handicap

This disproportionate increase in the numbers of the very old is of interest because of the relationship between age and handicap, and between age and the likelihood of institutionalisation. Table 2 presents age-specific rates for severe handicap on the basis of the 1981 ABS Handicapped Persons Survey and the 1988 ABS Disability and Ageing Survey, and Table 3 age-specific institutionalisation rates on the basis of HHLGCS data on nursing home and hostel residents.

Table 2: *Changes in severe handicap rates (1981 to 1988)*

Sex/Age	Per 1000 population 1981	1988	% change 1981-1988
Males			
65-69	76	86	13%
70-74	98	107	9%
75-79	160	119	-26%
80-84	225	264	17%
85+	385	400	4%
65+	123	131	7%
Females			
65-69	95	90	-5%
70-74	127	143	13%
75-79	223	229	3%
80-84	387	368	-5%
85+	549	702	28%
65+	204	226	11%
Persons			
65-69	86	88	2%
70-74	114	127	11%
75-79	197	184	-7%
80-84	332	330	-1%
85+	507	619	22%
65+	170	186	9%

Sources:

ABS 1981, Handicapped persons survey unpublished data

Mathers C 1991, Health expectation in Australia1981 and 1988, AIHW, AGPS, Canberra pp51

ABS 1990, Disability and handicap Australian 1988, ABS Cat No. 4120.0, ABS, pp7,13

Table 3: *Institutionalisation rates for nursing homes and hostels (1992)*

Sex/Age	Residents/1000 persons for: Nursing homes	Hostels
Males		
65-69	5	3
70-74	11	5
75-79	24	12
80-84	49	32
85+	113	88
Total	21	13
Females		
65-69	5	3
70-74	12	8
75-79	32	22
80-84	77	60
85+	220	140
Total	44	30
Persons		
65-69	5	3
70-74	11	7
75-79	29	18
80-84	67	49
85+	189	125
Total	34	22

Sources:

ABS, 1993: Estimated resident population by sex and age: States and Territories of Australia June 1987 to June 1992, ABS Cat No. 3201.0, ABS pp34-38

HHLGCS 1992, Aged persons hostels - a statistical overview 1991 - 1992, HHLGCS pp14

HHLGCS 1993, Nursing homes for the aged - a statistical overview 1991 - 1992, HHLGCS pp12-13

As expected, rates of severe handicap rose with age. According to the 1988 data, 88 in every thousand people in the 65 to 69 age group were severely handicapped, compared with 619 per thousand in the 85 and over category. Rates of institutionalisation in nursing homes were also much higher amongst the very old, rising from 5 per thousand for persons aged 65 to 69, to 189 per thousand for persons aged 85 and over. For hostels, the comparable rates were three per thousand for those aged 65 to 69, and 125 per thousand for those aged 85 and over. There is also a distinct sex effect, with handicap rates among women being higher in every age group, and institutionalisation rates among

women being higher from age 70 onward. In both cases, these differences become more pronounced with increasing age.

The very old are therefore both more likely to be severely handicapped, and more likely to be institutionalised. Considered in the context of the higher rate of growth which characterised the very old component of the aged population from 1985 to 1992, it becomes evident that the total population aged 70 and over in 1992 is likely to contain a significantly higher proportion of severely handicapped, and hence a larger proportion potentially in need of residential care, than was the same population in 1985. This trend is of obvious policy importance given the recent reduction in overall levels of residential care, and the current policy direction to further reduce existing levels of nursing home care.

The trends described above assume that the relationship between age and severe handicap is a constant one. Pending the release of the 1993 ABS Disability, Ageing and Carers Survey data, such an assumption must remain as a limitation on the accuracy of the present analysis. There is some debate in the international literature as to whether recent gains in life expectancy at the latter stage of the life cycle are associated with higher and more prolonged levels of severe handicap (Robine, Mathers and Brouard, 1993). At present, that debate remains unresolved. In Australia, the two major national surveys of handicap and disability conducted in 1981 and 1988 did show a general increase in the prevalence of disability and handicap in the older population. Rates of severe handicap in the population aged 65 and over increased by 7 per cent for males and 11 per cent for females (see Table 2).

It is not certain how much of this increase relates to changes in the perception of disability and handicap among members of the general population, and how much to changes in levels of underlying chronic disease and impairment (Mathers, 1991:37-39; Otis and Howe, 1991). The uncertainty surrounding the observed trend led us to reject the option of interpolating and extrapolating

changing handicap rates over time for this analysis; we employ constant age and sex specific rates of severe handicap based on the 1988 data. If indeed, levels of severe handicap increased from 1981 to 1988, and have continued to increase, then the trends reported here will underestimate the actual levels of severe handicap in the aged population. Further analyses of this kind will be undertaken when the 1993 survey data are available.

Nonetheless, there remains over the period in question at least the possibility of an increase in severe handicap rates, and for part of that period (1985 to 1988) an undeniable increase in the level of reported handicap. Any increases in real handicap levels will further escalate the need for residential care, quite apart from those which stem from the increasing proportions, as well as the increasing absolute numbers, of the very old in our aged population.

Age-based Indicators of Levels of Residential Care

The standard measure of changes in levels of residential provision is the number of beds and places provided per thousand persons aged 70 and over. While an accurate measure of changes in the size of the target population defined in terms of age, the preceding discussion has demonstrated that such an indicator cannot take account of the rapid ageing of the older population and the associated increases in frailty. The effect on age-based indicators of the ageing of the aged population is illustrated in Table 4. By comparing indicators based on a series of age cut-off points, the varying sensitivity of such measures to changes in the structure of the aged population is revealed. Table 4 summarises changes in levels of nursing home and hostel provision from 1985 to 1992 calculated in terms of denominators representing the number of persons aged 65 and over, 70 and over, 75 and over, and 80 and over respectively.

Table 4: *Residential care provision indicators at different age cut off points*

	Beds/1000 people		Changes1985 to 1992	
	1985	1992	No.	%
Age cut off		***Nursing homes***		
65+	44	37	-7	-16
70+	67	56	-11	-16
75+	117	93	-24	-21
80+	238	183	-55	-23
Age cut off		***Hostels***		
65+	22	25	4	18
70+	32	38	6	18
75+	57	64	7	12
80+	116	126	10	8
Age cut off		***Nursing homes and hostels***		
65+	66	62	-3	-5
70+	99	94	-5	-5
75+	174	157	-17	-10
80+	355	309	-45	-13
Absolute numbers				
Nursing home beds	71,503	74,039	2,536	4
Hostel places	34,885	50,924	16,039	46

Sources:

ABS 1987, Estimated resident population by sex and age: States and Territories of Australia June 1981 to June 1987, ABS Cat. No. 3201.0, ABS, pp19

ABS 1993, Estimated resident population by sex and age: States and Territories of Australia June 1987 to June 1992, ABS Cat. No. 3201.0, ABS, pp38

HHCS 1991, Aged care reform strategy mid term review 1990-91 Report, AGPS, Canberra, pp95

HHLGCS 1992, Aged persons hostels - a statistical overview 1991-1992, HHLGCS, Canberra, pp9

HHLGCS 1993, Nursing homes for the aged - a statistical overview 1991-1992, HHLGCS, Canberra, pp10

As would be expected, the 65 and over indicator is least sensitive to the ageing of the aged population, and the 80 and over category maximally so. The standard planning ratio (70+) suggests that over the period from 1985 to 1992 there were 11 fewer nursing home beds (a 16% decrease) and six additional hostel places per thousand persons 70 and over (a 18% increase). The 65 and over indicator which was used until the early eighties puts this at a loss of seven nursing home beds per thousand persons 65 and over (a 16% decrease), and a gain of four hostel places (a 18% increase). Alternatively, the 75 and over and 80 and over planning ratios put the nursing home bed losses at 24 per thousand (-21%) and 55 per thousand (-23%) respectively, and the hostels gains at 7 per thousand (+12%) and 10 per thousand (+8%) respectively.

One interpretation is obvious; depending on the indicator employed, quite different pictures emerge of recent changes in the level of residential care provision in Australia. A second issue is more contentious - which of these can be regarded as the more accurate measure of the need for residential care?

In appraising the relevance and usefulness of each of these alternative indicators, the key issues are the extent to which they are inclusive of the potential client population, and the extent to which they are focussed on that component of the potential client population where use is likely to be at its heaviest. To some extent, these two dimensions are inherently oppositional. As the degree of inclusion increases, so does the specificity of focus diminish.

Table 5 demonstrates this trade-off between degree of inclusion and specificity of focus. In interpreting the table, note that it presents data for persons aged 60 and over only. Thus, for example, a planning ratio based on the numbers of persons aged 60 and over would include 100 per cent of the aged population, and 100 per cent of aged residents in nursing homes, but the specificity of such a planning ratio would be low as only 2.5 per cent of people aged 60 and over are in nursing homes. At the other end of the spectrum, a planning ratio based on those 85 and over would include only 6 per cent of the aged population, and 45 per cent of residents in nursing homes, giving a relatively low level of inclusion. The specificity of focus, on the other hand, is moderately high, as 20 per cent of people in this age group are actually resident in nursing homes. The relatively smooth rates of change in terms of both level of inclusion and degree of specificity demonstrated by the table make the selection of an optimal mix based on age alone a vexed task.

Table 5: *Age profiles of aged persons and nursing home residents, Australia, 30 June 1992*

Age	Per cent of aged population	Per cent of residents in each age group (a)			Aged persons institutionalisation rate (%)		
		NHs	Hostels	Both	NHs	Hostels	Both
60+	100.0	100.0	100.0	100.0	2.5	1.7	4.2
65+	73.4	97.6	98.0	97.8	3.4	2.3	5.7
70+	48.6	92.5	94.0	93.1	4.9	3.3	8.2
75+	29.1	83.9	86.2	84.8	7.4	5.1	12.5
80+	14.8	68.0	70.5	69.0	11.9	8.3	20.2
85+	6.0	45.0	44.5	44.8	20.0	13.2	33.2

NH=Nursing home.

(a) Indicates proportion of residents of nursing homes or hostels who fall within that age category, ie 45 per cent of residents were aged 85 and over.

Sources:

ABS 1993, Estimated resident population by sex and age: States and Territories of Australia June 1987 to June June 1992, ABS Cat. No. 3201.0, pp38

HHLGCS 1992, Aged persons hostels - a statistical overview, HHLGCS, pp14

HHLGCS 1993, Nursing homes for the aged - a statistical overview, HHLGCS, pp13

Indicators incorporating Handicap Levels

An alternative basis for measuring the extent of provision is to relate the availability of beds more directly to the population at risk, that is to the size of the handicapped aged population rather than the aged population per se. Such a measure has the advantage of maximising both the proportion of the target population included in the estimate and the specificity of focus (as handicapped persons have higher rates of institutionalisation) simultaneously, thereby arguably providing a more robust measure of changing levels of provision over time than that achieved by age-based measures alone. These indicators are included in Table 6.[1]

Table 6: *Residential care provision indicators based on handicapped persons at different age cut off points*

	Places/1000 severely handicapped persons		Changes 1985 to 1992		Places/1000 moderate to severely handicapped persons		Changes 1985 to 1992	
	1985	1992	No.	%	1985	1992	No.	%
					Nursing homes			
Age cut off								
65+	239	195	-44	-18	146	120	-26	-18
70+	285	232	-53	-19	187	154	-33	-18
75+	373	294	-79	-21	271	214	-57	-21
80+	532	412	-120	-23	427	330	-97	-23
					Hostels			
Age cut off								
65+	117	134	18	15	71	83	12	16
70+	139	160	20	15	91	106	15	16
75+	182	202	20	11	132	147	15	11
80+	259	283	24	9	208	227	19	9
					Nursing homes and hostels			
Age cut off								
65+	356	330	-26	-7	217	203	-14	-6
70+	424	392	-33	-8	279	260	-19	-7
75+	555	497	-58	-11	403	361	-42	-10
80+	791	695	-96	-12	635	557	-78	-12

Sources:

ABS 1987, Estimated resident population by sex and age: States and Territories of Australia, June 1981 to June 1987, ABS Cat. No. 3201.0, ABS, pp17-19

ABS 1990, Disability and handicap Australian 1988, ABS Cat. No. 4120.0, ABS, pp7,13

ABS 1993, Estimated resident population by sex and age: States and Territories of Australia, June 1987 to June 1992, ABS, Cat. No. 3201.0, ABS, pp35-38

HHCS 1991, Aged care reform strategy mid term review 1990-91 report, AGPS, pp95

HHLGCS 1992, Aged persons hostels - a statistical overview 1991-1992, HHLGCS, pp9

HHLGCS 1993, Nursing homes for the aged - a statistical overview 1991-1992, HHLGCS, pp10

Ratios were calculated for both the moderately and severely handicapped, and the severely handicapped only. The former measure is arguably more inclusive, the latter is more closely focussed on the target population for residential care, and in methodological terms probably the more robust measure on which to base population estimates.[2] Again, the calculations were done for different age categories, but here attention should focus on the 65 and over and 70 and over groups. Given the greater specificity of focus achieved by basing the ratios on the handicapped aged, the higher age cut off points remain useful for illustrative purposes, but are not recommended as accurate indicators as they compromise the inclusion criterion to an unacceptable degree.

Using the numbers of beds available to moderately and severely handicapped persons aged 65 and over as the basis for bed ratio calculations, the decrease in nursing home beds over the period has been 26 beds per thousand such persons and the increase in hostels places has been 12. If the ratio is based on the severely handicapped only (probably a more accurate measure of the target population for residential care), the decrease in nursing home beds has been 44 beds per thousand, and the increase in hostel places 18.

Taking Utilisation into Account

These alternative measures illustrate the limitations of using only one indicator to monitor changing levels of provision, and suggest that the reduction in the supply of nursing home beds may well be under-stated by the use of the standard 70 and over planning ratio. The analysis offered so far does not, however, specify the impact of this change on patterns of residential care utilisation, nor indicate which components of the aged population have been most affected. In order to take this next step, age and sex specific utilisation rates must be incorporated into the analysis.

Because nursing home occupancy rates are very high, utilisation closely approximates provision.[3] Utilisation measures, however, allow the level of use by different age and sex groups in the population to be calculated, whereas provision data simply document the amount of service available to the target population, however it is defined. By examining changing patterns of utilisation over time, it is possible to specify the actual changes in service use for each age and sex group. It should be noted, however, that the analysis of utilisation presented here is based on published data, which describes bed usage at only one point (30 June) in the year. A preferred measure would incorporate the total number of persons who have used nursing home beds over the course of that year. In the absence of this data, turnover rates become an important additional component in exploring changing levels of adequacy in residential care provision. We return to this issue in a latter section of the paper.

Table 7 compares the age and sex profiles of nursing homes residents in 1988 and 1992.[4] The first three columns show the change in terms of the proportions of each age and sex group who were in nursing homes. The next four columns show the same patterns, but in terms of the difference between the actual number of residents in each age and sex group in 1992, and the number which would have been expected on the basis of 1988 patterns of use.

Table 7: *Nursing home residents and institutionalisation rates by age and sex 1988 & 1992*

	Rate: No. of residents per 1000 persons			No. of residents 1992		Difference	Percentage	% distribution
Sex/Age	30 Jun 1988	30 Jun 1992	Difference	Estimate(a)	Actual		difference	of difference
Males				21,594	20,043	-1,551	-7.2	100.0
<60	0.18	0.16	-0.02	1,380	1,232	-148	-10.7	9.5
60-69	4.01	3.90	-0.11	2,758	2,679	-79	-2.9	5.1
70-74	11.83	10.66	-1.16	2,828	2,550	-278	-9.8	17.9
75-79	24.83	23.85	-0.98	4,031	3,872	-159	-3.9	10.3
80-84	50.85	48.70	-2.15	4,496	4,306	-190	-4.2	12.3
85+	127.57	113.00	-14.57	6,101	5,404	-697	-11.4	44.9
Females				59,231	52,019	-7,212	-12.2	100.0
<60	0.18	0.16	-0.01	1,293	1,194	-99	-7.6	1.4
60-69	4.00	3.81	-0.19	2,761	2,633	-128	-4.6	1.8
70-74	13.84	12.08	-1.76	4,053	3,537	-516	-12.7	7.1
75-79	35.42	31.97	-3.45	8,126	7,334	-792	-9.7	11.0
80-84	89.22	77.34	-11.87	13,519	11,720	-1,799	-13.3	24.9
85+	253.76	220.38	-33.39	29,480	25,601	-3,879	-13.2	53.8
Persons				80,825	72,062	-8,763	-10.8	100.0
<60	0.18	0.16	-0.02	2,673	2,426	-247	-9.2	2.8
60-69	4.01	3.86	-0.15	5,519	5,312	-207	-3.7	2.4
70-74	12.95	11.44	-1.50	6,881	6,087	-794	-11.5	9.1
75-79	31.08	28.60	-2.47	12,157	11,206	-951	-7.8	10.9
80-84	75.26	66.79	-8.47	18,016	16,026	-1,990	-11.0	22.7
85+	219.04	189.07	-29.98	35,580	31,005	-4,575	-12.9	52.2

(a) Estimates of residents for "persons" were derived by summarising estimated male and female residents

Sources:

ABS 1993, Estimated resident population by sex and age: States and Territories of Australia, June 1987 to June 1992, ABS Cat. No. 3201.0, ABS, pp9-14,34-38

HHCS 1989, Nursing home for the aged - a statistical overview, HHCS pp24-25

HHLGCS 1993, Nursing home for the aged - a statistical overview, HHCS pp12-13

The proportion of persons aged 85 and over who were in nursing homes dropped from 219 per thousand to 189 per thousand, and the comparable decrease for those aged 80 to 84 was from 75 per thousand to 67 per thousand. In absolute numbers, this means that well over 6,000 persons aged 80 and over who would have been in nursing homes on 1988 patterns of use, were not in fact in nursing homes in 1992. For the population aged 60 and over, there were 8,516 fewer persons accommodated in nursing homes in 1992 than would have been there on 1988 rates of utilisation.

The reduction in these rates is quite large, averaging 11 per cent, particularly given that these data describe the changes over only a four year period. There are marked differences for different age and sex groups, however, with most of the losses occurring amongst women aged 70 and over, and men aged 85 and over. (The under 60 category also showed reductions, consistent with current preferred practice which avoids admitting the young disabled to aged persons nursing homes.) The different patterns for men and women caution against interpreting these data simply by age; the numerical dominance of women in the "persons" category can make a "female" only trend appear to apply to all nursing home residents.

For women, the highest percentage reduction occurred in the 80 to 84 and 85 and over age groups (13.3 and 13.2%), closely followed by those aged 70 to 74 (12.7%) and 75 to 79 (9.7%). For men, the only comparable levels are in the 85 and over category (11.4%) and the 70 to 74 age group (9.8%). This 'bump' in the 70 to 74 age group, reflected in a smaller but comparable increase among women of the same age, appears inexplicable, although it is tempting to speculate that this may be influenced by the large proportion of veterans in this age group. While there is no smooth age related trend, the youngest group of aged persons (60 to 69) did have the smallest reduction (3.7%), and the oldest categories the highest

If age is taken as an indicator of dependency or frailty, it is clear that the reduction in patterns of use has not been concentrated on those likely to be least in need - the younger aged. Moreover, given the observed higher age-specific handicap rates amongst women, and their lower likelihood of having a surviving spouse to provide domiciliary care, the greater reduction in women's patterns of use is counter intuitive to a focusing of services on those most in need. Less surprisingly, given the numerical dominance of both women and the very old in nursing homes, the total reduction in use is concentrated in those groups (column 8). Thus the very old (80 and over) accounted for 75 per cent of the reduction in bed use, comprising 65 per cent very old women and 10 per cent very old men.

The relationship between changes in utilisation and demographic change

Data has been presented which details the changing age and sex profile of the aged population and the consequent increases in the numbers of aged persons who may be in need of residential care. Data have also been presented demonstrating the changing levels of nursing home use by each of those age and sex groups, and the oldest groups appear to have been most strongly affected. It is nonetheless the case that these older groups are those which are increasing most rapidly; one plausible hypothesis is that although the reductions in these older groups appear higher, they would not do so in relation to the faster rate of growth which those categories have experienced. In order to examine this hypothesis, it is necessary to establish the relationship between changing utilisation patterns and rates of demographic change.

Changes in the patterns of use of nursing homes by aged people are largely determined by the total number of available beds, moderated according to the procedures by which eligibility is determined, and by the demographic changes in the aged population already described in earlier sections.[5] The interaction

between these two sets of factors (essentially supply and demand factors) determines the age and sex profile of nursing home residents, and hence the proportion of aged persons in residential care.

Changes in the number of nursing home residents may thus be represented as a function of changes in institutionalisation rates, the age and sex profile of the aged population, and the total size of the aged population:

$$R^2_{ij}-R^1_{ij}=(I^2_{ij}-I^1_{ij})p^2_{ij}P^2_j + I^1_{ij}(p^2_{ij}-p^1_{ij})P^2_j + I^1_{ij}p^1_{ij}(P^2_j-P^1_j) \quad \text{.....(a)}$$

$$R^2-R^1=\Sigma(I^2_{ij}-I^1_{ij})p^2_{ij}P^2_j + \Sigma I^1_{ij}(p^2_{ij}-p^1_{ij})P^2_j + \Sigma I^1_{ij}p^1_{ij}(P^2_j-P^1_j) \quad \text{.....(b)}$$

where: R=number of residents, P=total population, p=age-specific proportion of population for each sex, I=institutionalisation rate, i=age group, j=sex, ^{1}=time 1, ^{2}=time 2

$\Sigma(I^2_{ij}-I^1_{ij})p^2_{ij}P^2_j$, $\Sigma I^1_{ij}(p^2_{ij}-p^1_{ij})P^2_j$, and $\Sigma I^1_{ij}p^1_{ij}(P^2_j-P^1_j)$ represent the changes which are respectively due to changes in institutionalisation rates, changes in the age and sex profile of the population and increases in the size of the total population from Time 1 (1988) to Time 2 (1992).

By using a decomposition analysis, it is possible to isolate the discrete effects of the absolute increase in the size of the aged population, changes in the age and sex structure of the population, and changes in age and sex specific institutionalisation rates. The results of the decomposition analysis, presented in Table 8, can be used to determine whether or not the existing system of provision has adversely effected certain groups over the four year period for which such data is available.

Table 8: *Decomposition of changes in nursing home residents 1988 to 1992*

	Number of residents		Changes in no. of residents due to:			Total changes
Sex/age	30 Jun 1988	30 Jun 1992	Institutionalisation rate	Age-sex structure	Population size	in number of residents
Males	18592	20043	-1551	1960	1041	1451
<60	1314	1232	-148	-8	74	-82
60-69	2623	2679	-79	-12	147	56
70-74	2515	2550	-278	172	141	35
75-79	3555	3872	-159	277	199	317
80-84	3752	4306	-190	534	210	554
85+	4833	5404	-697	997	271	571
Females	51853	52019	-7212	4321	3057	166
<60	1220	1194	-99	1	72	-26
60-69	2796	2633	-128	-200	165	-163
70-74	3702	3537	-516	132	218	-165
75-79	7292	7334	-792	404	430	42
80-84	11514	11720	-1799	1326	679	206
85+	25329	25601	-3879	2657	1494	272
Persons	70445	72062	-8763	6281	4099	1617
<60	2534	2426	-247	-7	146	-108
60-69	5419	5312	-207	-212	312	-107
70-74	6217	6087	-794	304	359	-130
75-79	10847	11206	-951	681	629	359
80-84	15266	16026	-1990	1861	889	760
85+	30162	31005	-4575	3654	1764	843

Sources:

ABS 1993, Estimated resident population by sex and age: States and Territories of Australia, June 1987 to June 1992, ABS CAT. No. 3201.0, ABS, pp9-14, 33-38

HHCS 1988, Nursing homes for the aged - a statistical overview 1988, HHCS, pp24-25

HHLGCS 1993, Nursing homes for the aged - a statistical overview 1991-1992, HHLGCS, pp13-14

As would be expected given the overall reduction in the level of provision, the two demographic elements had the effect of increasing the predicted number of residents, while reductions in the age and sex specific institutionalisation rate produced the opposite effect. The combination of the three factors is shown in the last column of the table.

Overall, the number of nursing home residents increased by 1,617 persons (2.3%) from 1988 to 1992. However, the net gains were not evenly distributed across age and sex categories. Male residents increased in numbers by 1,451 (7.8%), while females increased only marginally by 166. The number of female residents under 75 decreased, while those 75 and over increased, suggesting

that some targeting of services on potentially "higher need" groups had occurred. The number of male residents increased in all age groups with the exception of those under 60.

The combined effect of demographic changes (population increase and changes in the age and sex profile) would have contributed a potential additional 10,380 residents to nursing homes by 1992, if 1988 patterns of use had been maintained. However, 84 per cent (8,763 residents) of this potential increase did not occur, evidenced by the consequent decrease in institutionalisation rates in the population.

This offsetting effect was particularly strong amongst women, so that of a potential increase of 7378 female residents on demographic grounds, 98 per cent did not occur, again mirrored in declining institutionalisation rates amongst women. The effect is age related; the proportion of the potential increase as a result of demographic changes not converted into actual utilisation runs at over 90 per cent for women aged 75 and over, but over 100 per cent for the remainder. For aged men, however, the rates at which demographically driven increases were not converted to actual use approach 90 per cent only for those aged 70 to 74, with the next most affected being the 60 to 69 (58%) and 85 and over (55%) groups. The 75 to 79 age group (33 per cent) and 80 to 84 group (26 per cent) were even less affected.

Therefore, even when the effects of demographic change are taken into account, this analysis reveals that the reduction in rates of institutionalisation have been larger amongst women than men. The proportions of women affected are greater for all age groups than are the proportions for any of the male age categories. It appears clear that reductions in institutionalisation rates have disproportionately affected women rather than men.

For women, there is some evidence of successful targeting of nursing home services on the very old - that is, older women (75 and over) were less effected

than younger women (60 to 74). For men, there is no similar evidence of an age related trend.

When age specific patterns are examined for all aged persons (combining men and women) the dramatically larger reduction in institutionalisation rates amongst women, combined with the numerical predominance of women amongst the very old, results in a net effect whereby the very old (85 and over) demonstrate greater reductions in institutionalisation than do those 75 to 84. The reductions remains most marked, however, amongst the younger aged (60 to 74), consistent with some success in targeting.

Changing patterns of admission and turnover: a qualification

This analysis has focussed on identifying the effects of population ageing, changing age and sex profiles, and rates of institutionalisation in the aged population. It has not taken into account the effects of changes in turnover rates in the period under scrutiny. Higher turnover rates, and the corresponding higher admission rates, mean increased levels of accessibility in terms of the total number of persons using the service over a specified period. Such trends must be interpreted with caution, however. Turnover in a chronic care facility does not have the same meaning as it does for acute care facilities. Greater use of beds in acute care institutions may be directly associated with greater efficiency (a higher number of procedures per bed day), particularly in the absence of other adverse indicators (a higher proportion of post operative deaths). However, the meaning in a chronic care facility is not quite so clear. One possible interpretation is that persons are being admitted in a more advanced stage of frailty, and hence exiting the institution (via death or admission to an acute care facility) more quickly. Higher use in such terms may mean narrower targeting on a higher risk group; but does not necessarily represent the most adequate or appropriate level of care. More detailed

analyses of what factors underlie changing rates of turnover in chronic care institutions are required.

Table 9 presents a range of indicators concerning admissions, turnover and accessibility for the period from 1988 to 1992. These data suggest that while all indicators increased between 1987-88 and 1989-90, they then decreased in the two years since. One possible explanation of these changing trends is that policy changes resulted in a transitional stage which has now come to an end. The net change for the period remains as an increase in turnover, which suggests that some of the effects described in the preceding discussion may be ameliorated. The present downward movement, however, suggests that any such ameliorations may be transitory.

Table 9 : ***Nursing home annual admissions and total residents served, Australia, 1987–88 to 1991–92***

	Admissions	Admissions per bed	Admissions/70+ (%)	Total residents	Total residents per bed	Total residents/70+ (%)
1987–88	32,910	0.46	2.8	na	na	na
1988–89	37,818	0.52	3.2	108,263	1.5	9.2
1989–90	40,498	0.56	3.3	111,383	1.5	9.0
1990–91	39,608	0.54	3.1	110,595	1.5	8.6
1991–92	39,579	0.54	3.0	111,019	1.5	8.2

Notes:

1. 1987–1988 data is estimated based on records for six months only.
2. Respite admissions are excluded from 1987–88 to 1989–90 admission data, but otherwise included.

Sources:

ABS 1993, Estimated resident population by sex and age: States and Territories of Australia, ABS CAT. No. 3201.0, ABS, pp14,20,26,32,38 DCSH 1988, Nursing homes for the aged - a statistical overview 1988, DCSH, P21,37

DCSH 1990, Nursing homes for the aged - a statistical overview 1988-1989, DCSH pp10,18

HHCS 1991, Nursing homes for the aged - a statistical overview,1989-1990, HHCS, pp10,18

HHCS 1992, Nursing homes for the aged - a statistical overview, 1990-1991, HHCS, pp10,18;

HHLGCS 1993, Nursing homes for the aged - a statistical overview 1991-1992, HHLGCS, pp10,20

Conclusions.

The aim of this analysis has been to provide a more sophisticated appreciation of changing patterns of residential care over the period of the Aged Care

Reform Strategy than that which has been previously available. The standard planning ratio, based on the numbers of people aged 70 and over, demonstrates a reduction from 1985 to 1992 of approximately 11 nursing home beds per thousand, partially compensated by an increase of 6 hostel places per thousand. Neither movement has yet entered the vicinity of the projected benchmark figures of 40 nursing home beds and 52.5 hostel places per thousand persons 70 and over.

For the period 1985 to 1992, a range of alternative indicators of levels of nursing home and hostel provision were examined. If residential care places are considered in terms of the estimated number of severely handicapped persons aged 70 and over, for example, then nursing home beds decreased by 53, and hostel places increased by 20; a net reduction of 33 places per 1000 severely handicapped persons aged 70 and over.

The argument was advanced that the observed modest reduction in terms of the 70 and over planning ratio failed to take account of a probable increase in the demand for residential care services. That increase in demand was predicted on the basis of the changing age and sex profile of the aged population, such that the numbers of very old, and hence the more severely handicapped old, increased disproportionately during that period. Increases in the total numbers of persons aged 70 and over thus provide only a partial account of increases in demand for service, with the remaining component being changes in the proportion at the higher end of the age and handicap spectrum.

No single indicator presented here is suggested as a replacement for the 70 and over planning ratio. The point being made is more general; that alternative definitions of the target population when used as the basis for bed ratio calculations reveal significant differences in the level of sensitivity to the changing age structure of the aged population. These other indicators thus

provide complementary rather than alternative information to the established planning ratio of beds per thousand persons 70 and over.

One important consequence of the increasing potential demand for service at the same time as the bed ratio has reduced is a significant shift in patterns of utilisation. An examination of the proportion of each age group in nursing homes from 1988 to 1992 revealed that these levels had dropped across all ages. These reductions in institutionalisation had the largest effects on the very old, and in particular very old women, the categories where use is highest. Over the period from 1988, institutionalisation rates in nursing homes for these groups declined by at least 11 per cent. Over this period (1988 to 1992), the net loss in residential care places and beds was 25 per 1000 severely handicapped persons over 70, or 4 per 1000 persons aged 70 and over.[6]

It is clear from the decomposition analysis that the shift in age specific institutionalisation rates has been partially moderated by the targeting of services on higher need (defined here in terms of age) groups. Nonetheless, the overall impact remains concentrated on women who have traditionally been regarded as a higher risk group, owing to a combination of higher handicap rates, greater longevity, and the associated greater likelihood of attrition in their personal support networks.

Finally, it is possible that the effects of the reduced bed availability discussed in this paper may have been moderated by a number of factors. One already mentioned is the increase in turnover over the period, an issue which requires further investigation. Another is the increase in domiciliary services which has occurred over this period, one indicator of which is the doubling of expenditure under the HACC program from 1985-86 to 1991-92 in constant price terms. Further, while the first half of the paper dealt with both nursing homes and hostels, the utilisation analyses were necessarily limited to nursing homes only; the effects of the modest increase in hostel places over the period could not be included as data on the age and sex profiles of hostel residents was not

available prior to 1992. Some compensatory effect could therefore be expected; however as the net loss during the period from 1988 to 1992 of 25 beds or places per thousand severely handicapped persons aged 70 and over comprised a loss of 29 nursing home beds and a gain of only 4 hostel places, the effect would be a minor one.

Despite these caveats, the trends described in this paper are worthy of serious consideration. The next five years will see a further ageing of the aged population which, particularly in the context of any additional decreases in residential care provision, will compound the trends described in recent years. The desirability of higher or lower rates of institutionalisation remains an issue for debate and discussion in the wider community. The vast majority of aged persons prefer to remain in their own homes; the vast bulk of community based care is provided by family and friends. Informed debate and discussion about what constitutes the appropriate balance of care between the residential and community sectors can only be advantaged by more detailed analyses of the actual nature of changes occurring in the residential care sector.

Endnotes

[1]These calculations are based on a constant rate of handicap over the period under review. Age and sex specific handicap rates were calculated for each five year cohort using data from the 1988 Disability and Ageing Survey, and applied to population data to estimate the number of handicapped persons in each cohort over successive years.

[2]See Otis and Howe (1991) and Robine, Mathers and Brouard, 1993 for a discussion of this.

[3]As at 30 June 1992, 97.3 per cent of beds were occupied.

[4]The same analysis would ideally be undertaken for hostel care, particularly given that hostel places per capita have increased over the period under scrutiny, while nursing homes beds decreased. The analysis is limited, however, by the availability of data - nursing home age and sex client profiles are available from 1988 onward, but those for hostel residents from 1992 only. This analysis is thus confined to nursing home beds from 1988 onward.

[5] A further moderating factor not modelled in the equations which follow is the availability of alternative sources of care, particualrly hostels, formal community care services and informal assistance. While the relevance of these factors is recognised in the interpretation of subsequent analyses, current levels of data availability do not support their inclusion in these equations.

[6] The data reported in Table 6 describe changes from 1985 to 1992. For more detailed time series data, including the 1988 to 1992 comparisons referred to here and over leaf, see Gibson and Liu (1993:249).

REFERENCES

Braithwaite, John, Makkai, Toni, Braithwaite, Valerie and Gibson, Diane (1993) **Raising the Standard: Resident Centred Nursing Home Regulation in Australia**, Canberra: AGPS.

Gibson, Diane (1990) Social Policy in Christine Jennett and Randal G. Stewart (eds) **Hawke and Australian Public Policy: Consensus and Restructuring**, Melbourne: Macmillan, 180-203.

Gibson, Diane, Turrell, Gavin and Jenkins, Anne (1993) Regulation and Reform: Promoting Residents' Rights in Australian Nursing Homes **The Australian and New Zealand Journal of Sociology** 29 (1): 73-92.

Gibson, Diane and Liu, Zhibin (1993) Aged Care in Australian Institute of Health and Welfare, **Australia's Welfare 1993: Services and Assistance**, Canberra: AGPS, 200-265.

Harding, A and Mitchell, D. (1992) The Efficiency and Effectiveness of the Tax-Transfer System in the 1980's **Australian Tax Forum**, October.

House of Representatives Standing Committee on Expenditure (1982) **In a Home or At Home: Accommodation and Home Care for the Aged**, Canberra: AGPS.

Howe, Anna and Preston, George (1985) **A Comparative Analysis of Nursing Home Patient Populations in Australia**, Occasional Paper in Gerontology No 10, National Research Institute of Gerontology and Geriatric Medicine, University of Melbourne.

Mathers, C. (1991) **Health Expectancies in Australia**, Canberra: AIHW.

Otis, N. and Howe, A. (1991) Trends in Reported Disability in the Australian Aged Population: Interpretation of Preliminary ABS Survey Findings **Australian Health Review**, 14 (4) :380-393.

Robine, J., Mathers,C. and Brouard, N. (1993) Trends and Differentials in Disability-Free Life Expectancy. Paper presented at the International Union for Scientific Study of Population, Sendai, Japan, June.