1995

4334.0

NATIONAL HEALTH SURVEY

PRIVATE HEALTH INSURANCE

AUSTRALIA

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CONTENTS

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SYMBOLS AND OTHER
USAGES

ABS	Australian Bureau of Statistics
ICD	International Classification of Diseases
NHS	National Health Survey
OHP	Other health professional
PHI	Private health insurance
PHIAC	Private Health Insurance Administration Council
—	nil or rounded to zero
*	relative standard error of 25% to 50%
**	relative standard error over 50%

W. McLennan
Australian Statistician

MAIN FEATURES
••

INTRODUCTION

Results of the National Health Survey (NHS) showed that 43% of the Australian population, or 7.8 million people, had some private health insurance cover in 1995.

AGE

People in middle age groups were more likely to have private health insurance than those in other age groups; 54% of those aged 45–54 and 52% of those aged 55–64 were covered (table 2).

The proportion of people with private health insurance declined in older age groups to 41% of those aged 75 or more. However, this group was more likely to have some health cover by government health cards. Taking private health insurance and health cards together, over 90% of people aged 65 or more had some health cover additional to Medicare.

TYPE OF INCOME UNIT

People in income units comprising a couple without dependent children were most likely to have private hospital insurance (49%) in 1995, while those in couples with dependent children units were most likely to have ancillary cover (44%). People in single parent income units were least likely to have private health insurance (17%) (table 7).

INCOME

The likelihood of having private health insurance increased as income increased, from a low of 23% of people in income units with a gross annual income under $20,000 to 72% of people in units with an income over $70,000 (table 8).

SELF-ASSESSED HEALTH STATUS

Almost half of those who considered themselves to be in excellent or very good health had private health insurance in 1995, compared with 32% of those who rated their health as fair or poor (table 10). On average those with insurance reported a similar number of serious physical conditions to those without insurance (table 12).

HEALTH-RELATED ACTIONS

Of those who consulted a chiropractor, physiotherapist or dentist in the two weeks prior to the survey, 59%, 54% and 51% respectively had ancillary cover, compared with 36% with ancillary cover in the population overall (table 14).

MULTIVARIATE ANALYSIS

Using multivariate analysis, the strongest associations with having private health insurance were older age and higher income. The strongest negative association was with being covered by a government health card (table 16).

This publication presents statistics about private health insurance from the 1995 NHS. Information is provided about the levels and types of private health cover by selected demographic, socio-economic and health characteristics.

Age is a major factor influencing many of the characteristics discussed in this publication. However, the data have not been age standardised. Instead, following discussion of the individual characteristics, results of a multivariate analysis controlling for the effects of age and a range of other characteristics are presented.

Results of the NHS showed that in 1995, 43% of the population had some private health insurance cover; 38% had hospital cover (with or without ancillary cover), and 36% had ancillary cover (with or without hospital cover) (see Glossary).

The proportions of males and females with private health insurance were similar (43% and 44% respectively). Though differences were small, females up to the age of 44 years were more likely than males to be privately insured, but the pattern reversed at older ages.

1 Persons with private health insurance(a), by age and sex

Age (years)	Males %	Females %	Total(a) %	Total no. '000
Under 5	36.0	38.1	37.0	483.1
5–14	43.6	43.7	43.7	1 132.6
15–24	32.1	35.6	33.8	914.1
25–34	34.2	37.3	35.8	1 015.2
35–44	47.8	50.2	49.0	1 342.6
45–54	54.2	53.2	53.7	1 198.5
55–64	52.4	51.7	52.0	783.8
65–74	46.9	45.7	46.3	623.2
75 and over	43.4	38.6	40.5	326.4
Total	**42.7**	**43.8**	**43.3**	**7 819.6**

(a) Hospital and/or ancillary cover.

Of children under 5 years old, 37% were covered by private health insurance, increasing to 44% of children aged 5–14 years. This proportion reduced to 34% of those aged 15–24 years, an age range during which children cease to be covered by the family insurance of their parents. Thereafter the proportion insured increased to a peak of 54% for the 45–54 year age group. Private health insurance declined in older age groups to a low of 41% at ages 75 years or more.

2 Type of private health insurance, by age

| Age (years)	No. of persons	Hospital & ancillary	Hospital only	Ancillary only	Total with private health insurance(a)	No private health insurance
			AGE GROUP			
	'000	%	%	%	%	%
Under 5	1 305.2	26.7	5.8	4.4	37.0	63.0
5–14	2 594.8	31.6	5.5	6.1	43.7	56.3
15–24	2 704.3	25.7	3.3	3.6	33.8	66.2
25–34	2 839.2	26.1	4.9	4.4	35.8	64.2
35–44	2 738.9	34.8	6.7	7.0	49.0	51.0
45–54	2 229.8	43.3	5.9	4.3	53.7	46.3
55–64	1 506.2	39.3	9.3	3.1	52.0	48.0
65–74	1 346.8	30.7	13.6	1.7	46.3	53.7
75 and over	806.8	21.8	15.4	1.1	40.5	59.5
			TOTAL			
Proportion (%)	100.0	31.6	6.7	4.4	43.3	56.7
Number ('000)	18 072.1	5 703.9	1 210.0	801.0	7 819.6	10 252.5

(a) Includes insured, but type unknown.

The pattern of hospital insurance and ancillary insurance cover was similar across age groups through to 45–54 years. In older age groups, while both hospital and ancillary cover declined, the decline was greater for ancillary cover. Although the proportion of people in older age groups who had both hospital and ancillary cover declined sharply among those aged 65 years or more, this was partly offset by an increase in this age group of those reporting hospital only insurance.

3 Proportion with private health insurance, by age group
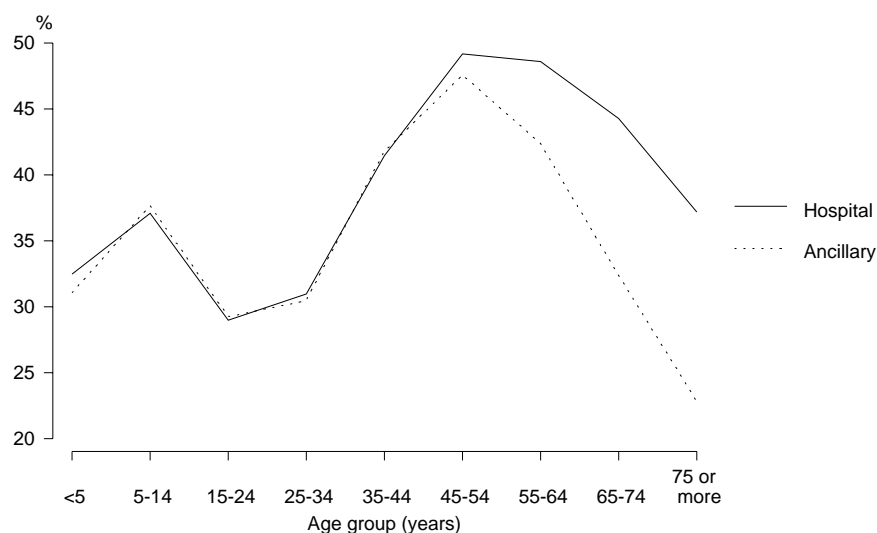
As a result of the pattern of private insurance cover, the insured population had an older age distribution than Australians in general. Of insured persons, 43% were aged between 35 and 64 years, compared to 36% of persons in the total population. Moreover, only 25% of insured persons were aged 15–34 years, compared to 31% of persons in the total population.

**4** Age profile(a) of insured population and total population
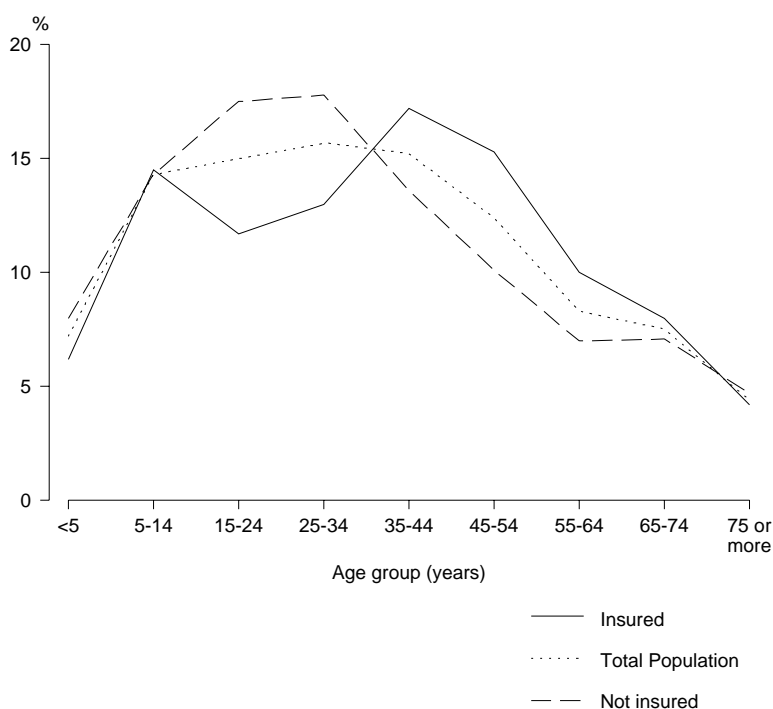
(a) Percent in each age group.

HEALTH CARDS

One in three people aged 15 years or more reported being covered by a Commonwealth Government health card, including Department of Veterans' Affairs cards (see Glossary). These cards are available variously to recipients of government pensions or allowances, other low income earners and persons of pensionable age and, in some cases, cover members of the card holder's family. Benefits provided differ between cards but can include entitlement to hospital and medical services, pharmaceutical benefits, dental, optical, hearing and ambulance services. Of those with private health insurance, 20% were covered by a card, compared with 44% of those without health insurance. This may reflect in part the distribution of card holders in older age groups.

While the entitlements and benefits provided by these cards are generally less than those provided by private health insurance, by combining the two an indication of those with some cover additional to Medicare can be obtained.

As shown below, while the proportion with private health insurance declined in older age groups, the proportion with a government health card increased sharply, with the result that over 90% of persons aged 65 years or more had cover in addition to Medicare.

5 Persons(a) with health insurance or government health card

————— With PHI and/or card

. . . . . . With card

— — With PHI
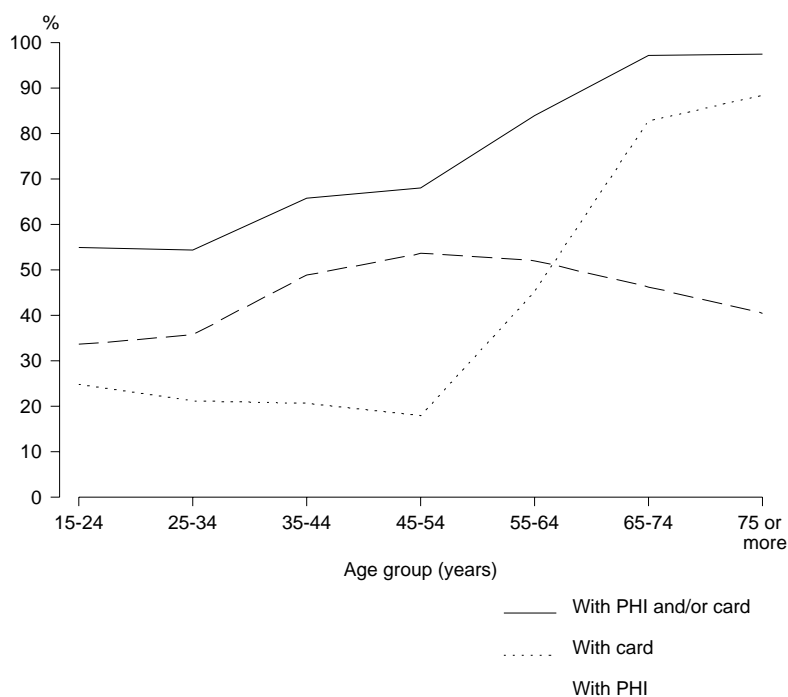
(a) Population aged 15 years or more.

The highest levels of private health insurance cover were recorded in South Australia and Western Australia (both 49%) and Tasmania (48%). Whereas the proportions with hospital insurance were similar across all States and Territories, the proportions with ancillary cover varied from a low of 31% in Victoria to 46% in Western Australia.

6 Type of health insurance, by State and Territory

State and Territory	No. of persons '000	Hospital & ancillary %	Hospital only %	Ancillary only %	Total with private health insurance(a) %	No private health insurance %
NSW	6 137.5	32.4	5.7	3.4	42.0	58.0
Vic.	4 507.2	27.5	10.8	3.0	42.1	57.9
Qld	3 272.9	30.6	7.4	3.1	41.6	58.4
SA	1 474.6	35.6	3.7	9.2	48.8	51.2
WA	1 730.7	36.2	1.9	10.0	48.7	51.3
Tas	473.3	37.7	3.0	6.2	47.5	52.5
NT(b)	139.0	36.7	*2.0	3.8	42.7	57.3
ACT	304.3	30.3	8.4	4.3	43.5	56.5
Aust.	18 072.1	31.6	6.7	4.4	43.3	56.7

(a) Includes insured, but type unknown.

(b) Relates to predominantly urban areas only.

A higher proportion of people in couple income units (see Glossary) had private health insurance than those in other types of units. People in couple income units without dependent children were most likely to have hospital insurance (49%), while people in couple units with dependent children were most likely to have ancillary cover (44%). For both these types of units, the proportions with both hospital and ancillary insurance were similar; the differences are largely explained by those units with hospital only or ancillary only insurance. The lowest levels of private health insurance were recorded for single parent with dependent children income units; 13% of people in these units had hospital cover, and 16% had ancillary cover.

7 Type of health insurance, by type of income unit

Type of income unit	No. of persons	Hospital & ancillary	Hospital only	Ancillary only	Total with private health insurance(a)	No private health insurance
	'000	%	%	%	%	%
Couple with dependent child(ren)	7 819.0	37.5	6.6	6.1	50.5	49.5
Couple without dependent child(ren)	4 462.4	38.8	9.9	3.6	52.8	47.2
Single parent with dependent child(ren)	1 292.8	11.8	1.5	3.8	17.1	82.9
Single person	4 265.6	20.6	5.4	2.7	30.1	69.9
Total	**18 072.1(b)**	**31.6**	**6.7**	**4.4**	**43.3**	**56.7**

(a) Includes insured, but type unknown.

(b) Includes persons for whom income unit type could not be established.

The likelihood of having private health insurance increased markedly as income
increased, from less than 25% of persons in income units with a gross annual
income under $20,000, to 72% of persons in income units with income of
$70,000 or more. This pattern was similar for males and females, and for both
hospital cover and ancillary cover.

8 Type of private health insurance, by income(a)

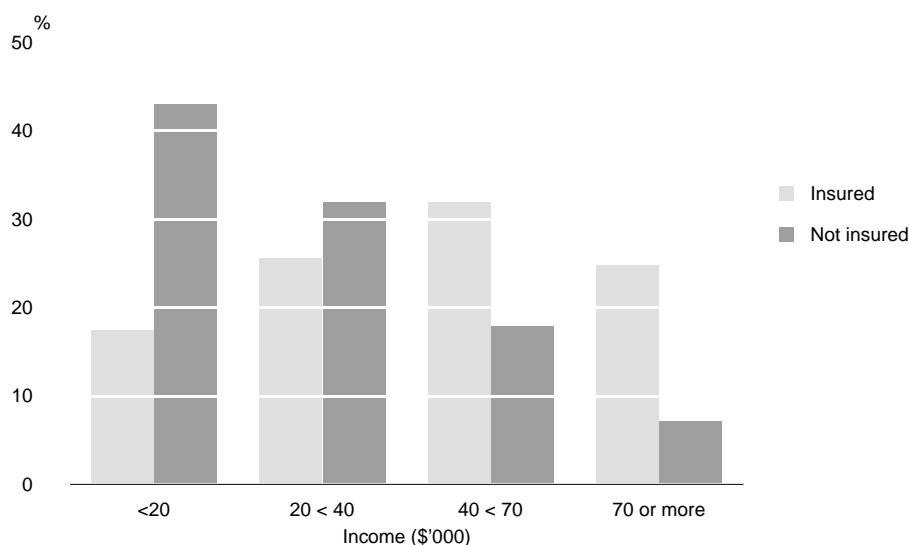| Income of income unit	No. of persons '000	Hospital & ancillary %	Hospital only %	Ancillary only %	Total with private health insurance(b) %	No private health insurance %
Less than $10 000	1 828.1	15.3	5.0	2.6	23.9	76.1
$10 000–19 999	3 217.1	13.2	6.1	2.5	22.3	77.7
$20 000–29 999	2 512.8	21.9	6.3	4.6	33.3	66.7
$30 000–39 999	2 057.3	29.7	5.4	6.1	41.5	58.5
$40 000–49 999	1 557.0	33.1	6.9	7.1	47.7	52.3
$50 000–59 999	1 321.4	48.4	5.4	6.5	60.6	39.4
$60 000–69 999	842.0	47.7	10.8	8.0	67.0	33.0
$70 000 or more	2 288.7	59.8	7.0	4.5	71.6	28.4
Not stated	2 048.6	42.5	10.5	3.2	57.2	42.8
Total	**18 072.1(c)**	**31.6**	**6.7**	**4.4**	**43.3**	**56.7**

(a) Gross annual income of income unit.

(b) Includes insured, but type unknown.

(c) Includes persons for whom income unit income could not be derived.

Over half (57%) of all persons insured were from income units with an annual unit
income of $40,000 or more, and 25% from units with income of $70,000 or more. The
majority (75%) of people without private health insurance were from units with less than
$40,000 annual income.

9 Income(a) profile of persons with and without insurance

(a) Income of income unit. Excludes persons for whom income unit income was not stated.

Health insurance cover was strongly associated with self-assessed health, with decreasing coverage as reported health declined. Almost half (49%) of those aged 15 years or more who considered themselves in excellent health had private health insurance, compared with 33% of those who rated their health as fair, and 29% of those who reported they were in poor health.

## 10 Type of health insurance, by self-assessed health status(a)

Self-assessed health status	No. of persons '000	Hospital & ancillary %	Hospital only %	Ancillary only %	Total with private health insurance(b) %	No private health insurance %
Excellent	2 896.3	37.2	7.0	4.3	49.1	50.9
Very good	4 837.7	34.9	7.5	5.0	47.9	52.1
Good	4 187.0	30.4	6.7	3.8	41.8	58.2
Fair	1 694.3	22.5	6.7	2.8	32.6	67.4
Poor	556.8	20.6	5.6	2.1	28.7	71.3
Total	**14 172.1**	**31.6**	**6.7**	**4.4**	**43.3**	**56.7**

(a) Persons aged 15 years or more.

(b) Includes insured, but type unknown.

The pattern of declining levels of private health insurance in lower self-assessed health status groups is common to all age groups. However, it is noteworthy that the rates of decline differ between age groups. The decline was steepest for the 45–64 year group. Among those aged 65 years or more, a shift from fair to poor health had no impact on health insurance levels.

11 Self-assessed health status, percent insured(a)
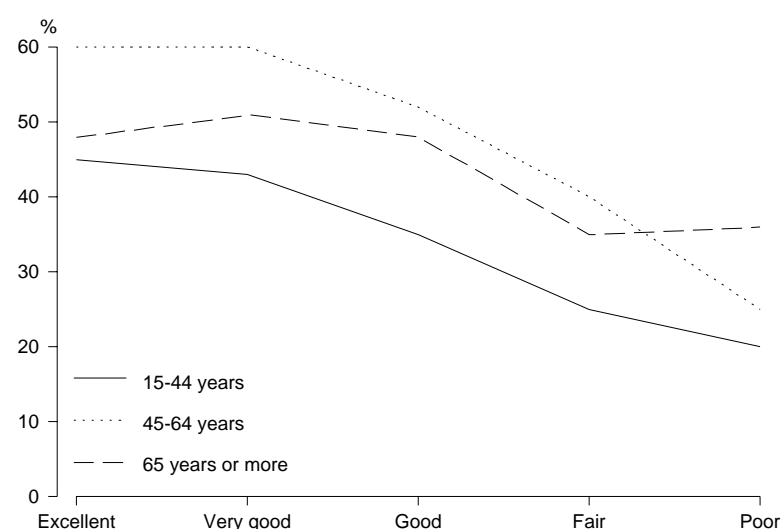
(a) Persons aged 15 years or more.

ILLNESS CONDITIONS

In addition to self-assessed health status, the NHS collected information about the number and types of illness conditions experienced by respondents. These ranged from relatively minor and temporary conditions such as headache or the common cold, to ongoing serious conditions such as asthma, arthritis and heart disease.

In general, the average number of serious physical conditions increased with age and, for all age groups, the average number of such conditions among insured people was lower than that for people without insurance. However, the average number of serious physical conditions for the insured group as a whole (0.71) was similar to the non-insured group (0.72), because of the older age distribution of the insured population. It is noteworthy that the older distribution of the insured population resulted in a higher average number of serious physical conditions among those with hospital only cover (0.94) than for the uninsured group (0.72). While this analysis looked only at illness conditions of individuals, it is recognised that decisions about whether or not to take out private health insurance may take into account the health status of all members of the family or income unit.

12 Serious physical conditions(a), by type of health insurance

AVERAGE NUMBER OF CONDITIONS(b)...........................

Age (years)	Hospital & ancillary	Hospital only	Ancillary only	Total with private health insurance(c)	No private health insurance
Less than 15	0.22	0.31	0.25	0.24	0.24
15–44	0.38	0.35	0.36	0.37	0.42
45–64	1.02	1.06	0.87	1.01	1.20
65 or more	2.03	2.08	2.30	2.05	2.20
Total	**0.69**	**0.94**	**0.49**	**0.71**	**0.72**

(a) See Glossary.

(b) Average number of serious physical conditions per person; see paragraph 11 of Explanatory Notes.

(c) Includes insured, type unknown.

There was no clear association between type of condition experienced and the likelihood of having or not having private health insurance. Because conditions are strongly age-related the analysis has been restricted to persons aged 15–64 years only.

Among the selected conditions examined, in the 45–64 year age group only for neoplasms and dental problems the proportion of people insured was considerably higher than that for the age group in total. Of those people aged 45–64 years reporting dental problems, 64% had private health insurance compared with 53% for the age group in total. Conversely, people with diabetes, asthma and bronchitis/emphysema were less likely to have private health insurance than for their age group overall.

13 Persons with medical conditions(a), by whether insured

| | WITH PRIVATE HEALTH INSURANCE(b)............ | | PERSONS 15–64 YEARS.. | |
| | 15–44 yrs | 45–64 yrs | With private health insurance | No private health insurance |
Selected conditions	%	%	%	%
Neoplasms	46.8	62.4	2.4	1.4
Diabetes	33.5	39.7	1.6	2.0
Sight disorders of refraction and accommodation(c)	46.2	54.4	58.9	44.6
Deafness–complete or partial	38.7	51.6	8.7	8.0
Hypertension	39.0	53.1	9.9	7.9
Heart disease and angina	25.8	49.5	1.5	1.5
Asthma	37.8	44.1	9.1	10.9
Bronchitis,emphysema	31.7	39.0	2.9	4.3
Ulcer	21.3	42.2	2.1	3.4
Dental problems	45.2	64.0	5.5	3.9
Kidney disease	39.4	47.8	1.6	1.6
Back problems(d)	45.7	51.2	9.0	7.6
Arthritis	37.2	49.8	13.4	12.4
All Persons	**39.5**	**53.1**	**100.0(e)**	**100.0(e)**

(a) Reported as recent and/or long term conditions. See Glossary.

(b) Proportion of persons in age group with selected condition who were insured.

(c) Disorders of refraction and accommodation able to be corrected by glasses.

(d) Includes disorders of the intervertebral disc, curvature of the spine and back problems unspecified.

(e) Only selected conditions are shown. Persons may have reported more than one condition. For these reasons, components will not sum to the totals shown.

The distribution of conditions within the insured and not insured populations aged 15–64 years was generally similar. However, whereas 59% of people with private health insurance reported sight disorders of refraction and accommodation (able to be corrected by glasses), 45% of those without insurance reported these conditions. The different age profiles of the insured and not insured populations may account for part of this difference.

Information collected in the survey is insufficient to enable an analysis of hospital stays by hospital insurance status. However, the data do enable some analysis of other actions taken by those with, and those without, ancillary cover. While the specific services covered by ancillary insurance can vary between insurers and between individual contributors, types of services commonly covered include dental, optical, physiotherapy and chiropractic services and often some pharmaceutical benefits are also provided.

Results of the 1995 NHS indicate some association between having ancillary cover and the likelihood of certain actions being taken for health. Of those who consulted a dentist in the two weeks before the survey, 51% had ancillary cover, as did 44% of those consulting a health professional other than a doctor or dentist. These proportions were higher than those recorded for other types of health related actions.

14 Type of health insurance, by type of action(a)

| Type of action	No. of persons	Hospital & ancillary	Hospital only	Ancillary only	Total with private health insurance(b)	No private health insurance
	'000	%	%	%	%	%
Persons who took selected action						
Hospitalisation	124.3	28.0	9.4	*3.9	41.5	58.5
Casualty/emergency/ outpatients visit	469.0	21.5	5.3	4.4	31.5	68.5
Day clinic visit	253.0	33.1	7.6	3.8	45.2	54.8
Doctor consultation	4 194.1	31.2	7.9	4.1	43.7	56.3
Dental consultation	1 006.2	44.2	4.5	6.7	56.0	44.0
Consultation with OHP(c)						
Chiropractor	280.1	49.4	5.1	9.9	65.2	34.8
Physiotherapist	282.8	48.6	6.2	5.3	60.1	39.9
Any OHPs	1 762.3	38.0	5.7	5.6	49.8	50.2
Medication use	12 386.0	33.5	7.2	4.7	46.0	54.0
Other health related contact	814.9	34.0	4.6	5.1	44.4	55.6
Total persons taking any action listed(d)	13 442.2	33.4	7.0	4.7	45.7	54.3
Persons who took none of the actions listed	4 629.9	26.3	5.7	3.6	36.1	63.9
Total persons	**18 072.1**	**31.6**	**6.7**	**4.4**	**43.3**	**56.7**

(a) Action taken for health in the two weeks prior to interview.

(b) Includes insured, but type unknown.

(c) See Glossary.

(d) Persons may have taken more than one type of action and therefore components will not add to totals.

15 Ancillary cover of persons consulting health professionals(a)
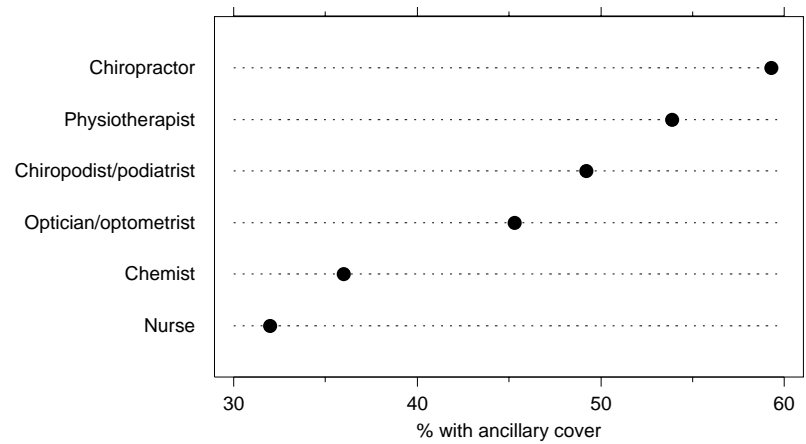
(a) Consultations in the two weeks prior to interview. See Glossary.

For the six types of health professionals (other than doctors and dentists) most commonly consulted, persons reporting consultations with chiropractor or physiotherapist reported the highest levels of ancillary cover: 59% and 54%. The lowest levels of ancillary cover were reported among those who had consulted a nurse (32%) or chemist (36%).

MULTIVARIATE ANALYSIS
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In the presentation of results previously shown in this publication, no account has been taken of the inter-relationships between the characteristics described, and the effects of those on associations with health insurance. For example, the inter-relationship between age and being covered by a government health card, or between income unit type and unit income.

One way in which these associations with private health insurance can be examined, while controlling for the effects of other characteristics, is through multivariate analysis. A model was constructed containing most of the person and income unit characteristics discussed in earlier parts of this publication. Results of the analysis were produced in the form of predicted odds ratios, which show the effect of changes in the characteristic (relative to a reference category), while controlling for the effects of all other characteristics in the model (see paragraphs 15–18 of Explanatory Notes). The analysis was carried out separately for hospital and ancillary cover.

Overall, results of the analysis, summarised in the following table, showed the strongest associations with having private health insurance were older age (55 years or more) and higher income ($40,000 or more). After controlling for the effects of other characteristics, persons in income units with a unit income of $80,000 had more than five times the predicted odds of having hospital cover than those in income units with unit income less than $20,000.

Whereas for income the observed and predicted odds ratios both increased with income, the pattern for age differed. The *observed* odds of having hospital cover was lowest in younger age groups, increased with age until the 45–54 year age group, and then decreased in older age groups. The *predicted odds*, however, showed a different pattern. From the reference group (35–44 years) onward, predicted odds increased steadily with age, with the oldest age group (65 years and over) having 4.4 times the predicted odds of having hospital cover compared to the reference group. Only those aged 25–34 had a lower predicted odds ratio than the reference group of 35–44 year olds. The difference between the pattern of observed odds ratios and predicted odds ratios shows the effect of controlling for all other characteristics in the model (in particular, income and government health cards). Predicted odds reveal the underlying trend, namely that increasing age substantially increases the chance of having hospital cover.

The strongest association with having no private health insurance was being covered by a government health card. After controlling for the effects of other characteristics, the predicted odds of people covered by such a card having private health insurance was less than one-third of that for persons who were not covered by a government health card.

16 Odds ratios: selected characteristics by type of cover

		HOSPITAL COVER...			ANCILLARY COVER...	
Characteristic	*Percent*	*Observed odds ratio*	*Predicted odds ratio*	*Percent*	*Observed odds ratio*	*Predicted odds ratio*
Sex						
Male(a)	37.8	1.00	1.00	35.6	1.00	1.00
Female	38.7	1.04	1.11	36.3	1.03	1.12
Age						
less than 15	35.6	0.78	1.00	35.5	0.77	0.98
15–24	28.9	0.58	1.02	29.2	0.57	0.98
25–34	31.0	0.64	0.74	30.4	0.61	0.68
35–44(a)	41.4	1.00	1.00	41.8	1.00	1.00
45–54	49.2	1.37	1.55	47.6	1.26	1.45
55–64	48.6	1.34	2.85	42.4	1.02	2.06
65 and over	41.7	1.01	4.42	28.8	0.56	2.25
Whether any person in unit has government health card						
No(a)	47.8	1.00	1.00	46.5	1.00	1.00
Yes	21.6	0.30	0.31	17.8	0.25	0.32
State and Territories						
NSW(a)	38.1	1.00	1.00	35.8	1.00	1.00
Vic.	38.3	1.01	1.02	30.5	0.79	0.77
Qld	38.0	1.00	1.13	33.7	0.91	0.99
SA	39.3	1.05	1.24	44.8	1.46	1.84
WA	38.1	1.00	1.08	46.2	1.54	1.80
Tas	40.7	1.12	1.43	43.9	1.40	1.78
NT	38.7	1.03	1.30	40.5	1.22	1.26
ACT	38.7	1.03	0.88	34.6	0.95	0.78
Section of State						
Major urban(a)	40.2	1.00	1.00	37.4	1.00	1.00
Other urban	33.5	0.75	0.79	33.2	0.83	0.95
Rural balance/bounded locality	37.1	0.88	0.83	34.4	0.88	0.84
Income unit type						
Couple with dependent child(ren)	44.2	0.83	1.19	43.6	1.05	1.25
Couple, no dependent child(ren)(a)	48.7	1.00	1.00	42.4	1.00	1.00
Single parent	13.3	0.16	0.68	15.6	0.25	0.86
Single person	26.1	0.37	0.69	23.4	0.41	0.74
Income						
Less than $20 000(a)	19.7	1.00	1.00	16.5	1.00	1.00
$20 000 to less than $40 000	31.3	1.86	1.58	30.7	2.24	1.68
$40 000 to less than $60 000	46.3	3.51	2.26	46.9	4.47	2.38
$60 000 to less than $80 000	59.1	5.89	3.56	57.4	6.82	3.51
$80 000 and over	69.1	9.12	5.27	65.8	9.74	4.59
Not stated, not applicable	46.5	3.54	3.05	40.1	3.39	2.59
Self-assessed health status (15 years and over)						
Excellent/Very good	43.1	1.90	1.74	40.4	2.07	1.60
Good	37.1	1.48	1.37	34.3	1.59	1.33
Fair/Poor(a)	28.5	1.00	1.00	24.7	1.00	1.00
Serious physical conditions (15 years and over)						
None	38.1	0.89	0.68	37.1	1.17	0.76
One	39.9	0.96	0.79	36.9	1.16	0.87
Two or more(a)	40.9	1.00	1.00	33.6	1.00	1.00

(a) Reference category.

Results from the multivariate analysis for indicators of health status were mixed. The predicted odds ratio for either hospital or ancillary cover was highest for those who considered themselves in excellent or very good health. However, in contrast, based on the number of serious physical conditions reported, the model indicated those in poorer health (ie reporting 2 conditions or more) were most likely to be insured. This apparent contradiction, which has been observed in other studies [1], suggests that the inter-relationship between self-assessed health status and number of conditions, and their inter-relationships with private health insurance are influenced in different ways by other characteristics in the model.

Further investigations were conducted focussing on those three characteristics identified as having most effect on whether or not people had private health insurance; age, income and being covered by a government health card. As shown below (see table 17), when the model controlled for age only, predicted odds ratios for both self-assessed health status and number of conditions were highest in those categories indicating better health. When the model controlled for age and income, the differences in odds ratios relative to the reference category were reduced for self-assessed health status but were still in favour of higher insurance levels among those in better health. However, for the number of conditions (see table 18), controlling for age and income reversed the direction of the predicted odds ratios, indicating those in poorer health were more likely to be insured. This effect was emphasised when government health card was added to age and income in the model, and was stronger for hospital cover than ancillary cover.

This suggests that self-assessed health status is a more consistent predictor of having/not having private health insurance (regardless of other characteristics) than the number of serious physical conditions, for which associations with health insurance were strongly influenced by income and having a government health card.

17 Predicted odds ratios: self-assessed health status(a)

| | HOSPITAL COVER.......... | | | ANCILLARY COVER.......... | | |
| | | *Controlling for –* | | | *Controlling for –* | |
	Age	Age & income	Age, income & health card	Age	Age & income	Age, income & health card
Self-assessed health status						
Excellent/very good	2.31	1.73	1.54	2.21	1.65	1.47
Good	1.65	1.39	1.27	1.65	1.39	1.27
Fair/poor	1.00	1.00	1.00	1.00	1.00	1.00

(a) Persons aged 15 years or more.

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[1]   Schofield, D. *The Distribution and Determinants of Private Health Insurance in Australia, 1990,* Discussion Paper 17, NATSEM.

18 Predicted odds ratios: number of serious conditions(a)

| | HOSPITAL COVER.......... | | | ANCILLARY COVER........ | | |
| | | *Controlling for –* | | | *Controlling for –* | |
	Age	Age & income	Age, income & health card	Age	Age & income	Age, income & health card
Serious physical conditions						
None	1.15	0.91	0.81	1.20	0.97	0.87
One	1.11	0.95	0.89	1.17	1.02	0.95
Two or more	1.00	1.00	1.00	1.00	1.00	1.00

(a) Persons aged 15 years or more.

For further information about this analysis, and the interpretation of results, see paragraphs 15 to 18 of Explanatory Notes. Results of a similar analysis of data from the previous (1989–90) National Health Survey are available in *Apparent Determinants of Private Health Insurance* (Cat. no. 4335.0.40.001), 1994, final issue released in February 1995.

EXPLANATORY NOTES
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INTRODUCTION

1 The 1995 National Health Survey (NHS) is the second in a series of regular five-yearly population surveys designed to obtain national benchmark information on a range of health-related issues and to enable the monitoring of trends in health over time. The survey was conducted throughout the 12-month period February 1995 to January 1996.

2 Topics covered in the survey included recent illness and long-term conditions; use of health services; use of medications and vitamins or minerals; days away from work and school and other days of reduced activity; smoking, alcohol consumption and exercise; height and weight; sun protection; breastfeeding; supplementary women's health issues; and injury accidents. An extensive range of demographic and socioeconomic information was also obtained.

3 Health insurance information was obtained from a subsample of 21,175 NHS respondents aged 15 years or more. These respondents were asked whether they were covered by private health insurance, the contribution rate (single or family) and the type of cover they had (hospital and/or ancillary). The health insurance status of children was imputed based on the health insurance characteristics of adult family members in the same household. Where an adult family member reported having insurance cover at family rates, it was assumed their children in that household were covered by that insurance. Conversely, where a respondent reported single rate insurance or no private health insurance, it was assumed the children of that respondent in the same household did not have private health insurance cover. In this way the information shown in this publication represents weighted estimates for the total population based on data for around 27,634 respondents of all ages.

4 In this publication most of the estimates presented are for persons, and reflect personal characteristics such as sex, age, self-assessed health status. In some cases (e.g. income, per person average number of serious conditions) persons are classified by characteristics of the income unit to which they belong. An income unit comprises one person, or group of related people (by marriage, de facto or parent/dependent child relationship) in a household whose command over income is assumed to be shared (see Glossary). Although not shown in this publication, estimates compiled at the income unit level are also available from the Australian Bureau of Statistics (ABS).

RELIABILITY OF ESTIMATES

5 The proportions with private health insurance obtained from the 1995 NHS are a little higher than those for 1995 available from other sources. A comparison of results of the NHS with statistics published by the Private Health Insurance Administration Council (PHIAC) is provided in the table below. For the purposes of this comparison, quarterly figures published by PHIAC were averaged over the four quarters of 1995.

Persons, Health insurance status, 1995

	NHS	PHIAC(a)
	%	%
With private health insurance		
Hospital cover(b)	38.3	34.8
Ancillary cover(b)	36.0	33.4
Cover not stated	0.6	—
Total insured	*43.3*	*41.4*
No private health insurance	56.7	58.6
Total	**100.0**	**100.0**

(a) Private Health Insurance Administration Council Report, PHIAC A, reports 951 to 954.

(b) Includes persons who have both hospital and ancillary cover.

6 Whereas the NHS statistics are derived from a population survey, PHIAC statistics are compiled from membership data provided by insurance funds. The differences may, in part, be due to the different sources of the information. While these differences in overall levels of cover need to be borne in mind in interpreting the information, the characteristics of those with and without cover described in this publication are considered valid for most practical purposes.

7 Since the estimates in this publication are based on a sample they are subject to sampling variability. Only estimates with relative standard errors (RSEs) less than 25% are considered sufficiently reliable for most purposes. However, estimates with RSEs 25% to 50% have been included and are preceded by an asterisk (e.g. *4.3) to indicate they are subject to a high standard errors and should be used with caution. Estimates with a RSE over 50% are also included and are preceded by a double asterisk (e.g. **0.1). Such estimates are considered too unreliable for general use. Further information about the calculation of SEs is published in *National Health Survey: Summary of Results,* (Cat. no. 4364.0).

8 In addition to sampling error, the estimates are subject to non-sampling errors. These may be caused by errors in reporting (e.g. because some answers were based on memory, or because of misunderstanding or unwillingness of respondents to reveal all details) or errors arising during processing (e.g. coding, data recording). Such errors may occur in any statistical collection whether it is a full census count or a sample survey. Every effort is made to reduce non-sampling errors in the survey to a minimum by careful design and testing of questionnaires, by intensive training and supervision of interviewers, and by efficient operating procedures.

9 Estimates for population groups and health characteristics shown in this publication may differ slightly from those published elsewhere by the ABS. These differences have occurred because the health insurance data were obtained from a subsample of NHS respondents only, and were weighted independently of most other topics in the survey. Since the same set of weights were applied in compiling all data shown in this publication, the distributions for all characteristics are considered to be reliable.

INTERPRETATION OF RESULTS

10 Information recorded in this survey is essentially 'as reported' by respondents, and hence may differ from that which might be obtained from other sources or via other methodologies. This factor should be considered in interpreting the estimates in this publication. For example, reported information on medical conditions was not medically verified, and was not necessarily based on diagnosis by a medical practitioner. Conditions which have a considerable effect on people are likely to be better reported than those which have little effect. Some people may be unaware of minor conditions, and occasionally may have serious conditions which have not been diagnosed. There may also be some instances of under-reporting as a consequence of respondents being unwilling to talk about a particular condition at an interview.

11 While the data on average number of conditions presented in table 12 are useful for illustration purposes, they should be interpreted with care. Counts of conditions are, in part, a product of the Conditions classification used. Use of a different classification would change the averages, but should not effect the general pattern described.

12 Health insurance status could not be established for a small number of respondents. In this publication those people have been counted as being without private health insurance cover.

13 The exclusion from the survey of people currently in hospitals, nursing homes and other institutions will have affected the results.

14 The ABS has conducted separate surveys of private health insurance in the past, most recently in 1992. While the methodology used in those surveys was broadly similar to that used in the 1995 NHS, comparisons should be made with care since minor changes to the approaches used, together with changes in community awareness and attitudes to health issues, may have influenced the responses provided. Another in the series of separate surveys of private health insurance will be conducted in June 1998.

MULTIVARIATE ANALYSIS

15 To illustrate the differences in private insurance between different groups, the percentage of persons in each category of an explanatory characteristic (for example, income) who have private hospital or ancillary insurance can be shown. Another way is to show odds ratios. The odds of having private hospital or ancillary insurance for a particular category is the probability of having that insurance divided by the probability of not having that insurance; i.e. $ODDS = P/(1-P)$. An odds ratio is simply the ratio of two odds. It is usual practice to divide the odds for all categories of a predictor variable by the odds of one particular category (the reference category). This standardises all the odds relative to the odds for the reference category, which is presented as 1.00.

16 Observed odds ratios, however, can only show the effect of one variable at a time (i.e. univariate analysis). When there are several influential factors, a model can often help to explore the relationships between the explanatory variables and the response variable (i.e. multivariate analysis). The advantage of using *observed* odds ratios for comparison is that these can be compared to *predicted* odds ratios obtained from logistic regression in which the effect of each variable individually can be shown while controlling for all the other variables in the model. Differences between observed and predicted can then be highlighted in order to better explain the underlying relationships between all the explanatory characteristics and the response variable.

	Male(a)	Female	No goverment card in unit(a)	Any government card in unit
Percentage with hospital cover	37.8	38.7	47.8	21.6
Observed Probability(p)	0.378	0.387	0.478	0.216
Observed odds=p/(1–p)	0.608	0.631	0.916	0.276
Observed odds ratio	0.608/0.608= 1.00	0.631/0.608= 1.04	0.916/0.916= 1.00	0.276/0.916= 0.30
Predicted odds ratio (from model)	1.00	1.11	1.00	0.31

(a) Reference category.

17 As an example, the above table shows the calculation of observed odds ratios for hospital cover using percentages from table 16 for two selected characteristics—sex and government card status. Predicted odds ratios from the model are included for comparison.

18 For the analysis presented in this publication, the model included both person and income unit characteristics known to influence health insurance status. Income unit level characteristics included in the model were income of unit, type of income unit, and whether anyone in the unit was covered by a government health card. Person level characteristics included in the model included age, sex, State or Territory, section of State, self-assessed health status, and number of serious physical conditions. The analysis considered main effects only, did not test for interactions, and did not remove non-significant main effects from the model. The unit of analysis was the person rather than the income unit. The analysis was done separately for two different response variables, hospital cover and ancillary cover. Results of the analysis are presented in the predicted odds ratio columns of table 16 and percentage distribution and observed odds have been included for comparison. Coefficients and SEs from the logistic regression are available on request.

19 Analysis of different variables, or analysis of a more detailed nature including interactions and model simplification, can be undertaken by the ABS Statistical Consultancy Unit. Contact Gemma van Halderen on Canberra 02 6252 6302.

GENERAL ACKNOWLEDGMENT

20 ABS publications draw extensively on information provided freely by individuals, businesses, governments and other organisations. Their continued cooperation is very much appreciated: without it, the wide range of statistics published by the ABS would not be available. Information received by the ABS is treated in strict confidence as required by the *Census and Statistics Act 1905*.

RELATED PUBLICATIONS

21 This publication is one of a series of publications and other releases of information from the 1995 NHS. Information about all the publications and other products released, or to be released, is contained in the brochure *National Health Survey: Guide to Products and Services* which is available free of charge from any office of the ABS. Other ABS publications which may be of interest include:

National Health Survey: Users' Guide, 1995 (Cat. no. 4363.0)

National Health Survey: Summary of Results, 1995 (Cat. no. 4364.0)

Health Insurance Survey, Australia, 1992 (Cat. no. 4335.0)

RELATED PUBLICATIONS   *continued*

22 Current publications produced by the ABS are listed in the *Catalogue of Publications and Products* (Cat. no. 1101.0). The ABS also issues, on Tuesdays and Fridays, a *Release Advice* (Cat. no. 1105.0) which lists publications to be released in the next few days. The Catalogue and Release Advice are available from any ABS office.

23 Other unpublished health insurance data may be available on request. Inquiries should be made to the contact shown at the front of this publication.

GLOSSARY
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Action taken   As used in this publication, actions taken refers to selected actions persons had taken in relation to their health in the two weeks prior to interview. Actions covered in this publication are:
- stay in hospital ending in that two week period
- visit to casualty or outpatients at a hospital
- visit to day clinic
- consultation with a doctor, general practitioner or specialist
- consultation with a dentist
- consultation with another health professional (OHP). Includes acupuncturists, audiologists, chiropractors, chiropodists/podiatrists, dieticians/nutritionists, herbalists, hypnotherapists, naturopaths, nurses, opiticians/optometrists, osteopaths, occupational therapists, physiotherapists, psychologists, social workers/welfare officers, speech therapists
- use of medications including vitamins, minerals, herbal and natural medications
- other contacts for health treatment, information or advice; includes practitioners not included in OHP's, health and community centres, clinics, ambulance, counselling and information services, self-help groups, family and friends.

Other actions for which data were collected in the survey, but have been excluded from this publication, included days away from work or school and other days of reduced activity due to illness.

Government health cards   Obtained for persons aged 15 years or more. Includes Department of Veterans' Affairs Treatment Entitlement card, Pensioner Concession Card, Commonwealth Seniors Health Card, Health Care Card and Health Benefits Card available at the time of the survey.

Illness condition   The survey aimed to identify all illness conditions currently experienced by respondents, including long-term conditions. All conditions reported, and other reasons for taking a health-related action were coded to a list of 134 selected conditions/reasons developed for the survey by the ABS. The classification was based on the ninth revision (1975) of the International Classification of Diseases (ICD).

Information obtained is 'as reported' by respondents, and may differ from that obtained by medical diagnosis.

Income unit   An income unit consists of one person, or a group of related persons within a household whose command over income is assumed to be shared. Income sharing is assumed to take place within married (registered or de facto) couples and between parents and dependent children. Dependent children include all persons aged under 15 years, and persons 15–24 years who are full-time students, live with a parent, guardian or other relative, and do not have a spouse or offspring of their own living with them.

Other health professionals (OHP)   Defined for the survey to exclude doctors and dentists, but include acupuncturist, audiologist, chiropractor, chemist, chiropodist/podiatrist, dietitian, herbalist, naturopath, hypnotherapist, nurse, optician/optometrist, osteopath, occupational therapist, physiotherapist, psychologist, social worker, speech therapist.

Self-assessed health status   Obtained for persons aged 15 years or more. Refers to respondent's perception of their general health status, reported against a five point scale: excellent, very good, good, fair or poor.

Serious physical conditions   Defined in this publication to include the following conditions listed below. For further information about these condition categories see *National Health Survey: Users' Guide* (Cat. no. 4363.0).

Condition	Approximate ICD9 equivalent codes
Neoplasms	140-239
Thyroid disease	240-246
Gout	274
Diabetes Mellitus	250 (excl. 250.9)
High blood sugar	250.9, 790.6
Glaucoma	365
Epilepsy	345
Paralysis	342-344
Other diseases of nervous system	320-326, 347-359
Other hereditary and degenerative disorders of nervous system	330-341
Atherosclerosis	440
Hypertension	401-405
Heart disease	391, 393-398, 410-426, 428
Stroke (incl. after effects)	436, 438
Ill-defined signs and symptoms of heart conditions	427, 429
Other cerebrovascular disease	430-435, 437
Other diseases of the circulatory system	390, 441-448, 451-453, 457-459
Bronchitis/emphysema	466, 490-492,494-496
Asthma	493
Ulcer	531-534
Hernia	550-553
Complications of pregnancy, childbirth, and puerperium	630-648, 651-676
Psoriasis	696
Arthritis – all types	711-713, 716
Rheumatism	725, 729
Congenital abnormalities	740-759
Fractures (any location)	800-829
Internal injuries	850-854, 860-869

Type of private health insurance   Hospital insurance covers the costs (wholly or in part) of accommodation and treatment in a hospital. From this survey no information about the level of cover, or conditions of cover (e.g. excess arrangements, exclusions or co-payment arrangements) are available. Ancillary insurance covers the costs (wholly or in part) of a range of non-hospital services such as physiotherapy, optical and dental treatment. Hospital and ancillary insurance can be taken out separately, or combined.

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POST Client Services, ABS, PO Box 10, Belconnen, ACT 2616

EMAIL client.services@abs.gov.au

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