

# **2004 Adult Vaccination Survey**

**Summary results**



**Australian Government**

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**Australian Institute of  
Health and Welfare**

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**Department of  
Health and Ageing**

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# **2004 Adult Vaccination Survey**

**Summary results**

**March 2005**

Australian Institute of Health and Welfare  
Australian Government Department of Health and Ageing  
Canberra

AIHW cat. no. PHE 56

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# Foreword

This report presents summary results from the 2004 Adult Vaccination Survey.

The Australian Institute of Health and Welfare conducted the survey, with financial support from the Australian Government Department of Health and Ageing. The survey project was approved by the AIHW Health Ethics Committee.

AIHW legislation affords a high level of protection to the personal information collected in the survey. Custody of the survey data set rests with the AIHW and is protected by the *Australian Institute of Health and Welfare Act 1987*. The release of this report is an important contribution to the evaluation of the Australian Government's Influenza Vaccine Program for Older Australians and sets a baseline for monitoring the future provision of pneumococcal vaccine.

I would like to pay particular tribute to AIHW staff for their role in managing the survey and to the Department's officers who worked closely with the AIHW throughout the survey.

Richard Madden

Director

Australian Institute of Health and Welfare

March 2005

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# Acknowledgments

The 2004 Adult Vaccination Survey required the time and input of a number of individuals and organisations. The assistance of the following is particularly appreciated.

The Policy Reference Group (see Appendix 1) was the main steering committee for the survey, with technical development provided by staff of the Australian Government Department of Health and Ageing and the Australian Institute of Health and Welfare.

## **From the Department of Health and Ageing:**

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## **Funding**

The funding for the 2004 Adult Vaccination Survey was provided by the Australian Government Department of Health and Ageing.

# Abbreviations and symbols

## Abbreviations

AIHW	Australian Institute of Health and Welfare
CATI	Computer-assisted telephone interview
DoHA	Department of Health and Ageing
NHMRC	National Health and Medical Research Council
NIPII	National Indigenous Pneumococcal and Influenza Immunisation
RSE	Relative standard error
SCH	Statistical Clearing House
SE	Standard error

## Symbols

0, 0.0    Zero or rounded to zero

–        Invalid calculation

### *Notes*

1.        State means state and/or territory.
2.        Totals and calculated results are based on unrounded data.
3.        Where the context permits, results are for Australia in 2004.

# Summary

## The 2004 Adult Vaccination Survey

The 2004 Adult Vaccination Survey (formerly the Influenza Vaccine Survey) includes questions on both influenza and pneumococcal vaccination. The influenza questions are part of the review of the National Influenza Vaccine Program for Older Australians. The pneumococcal questions support the setting of a baseline for monitoring pneumococcal vaccination, anticipating the evaluation of the National Pneumococcal Vaccination Program for Older Australians, which commenced on 1 January 2005. The results for each are summarised separately. The target population for both programs is Australians aged 65 years or older.

Conducted in October 2004, the survey was the fifth national survey in a current series and the third to be managed by the Australian Institute of Health and Welfare. For the first time, the survey included questions on pneumococcal vaccination. Also for the first time, the survey extended the age group questioned from 40 years or older to 18 years or older.

Almost 7,500 Australians participated in the survey. They were asked about their medical and sociodemographic status and about their recent experience of influenza and pneumococcal vaccination. From their responses, four central results (coverage, valid usage, leakage and unknown usage) were estimated and some other analyses made for influenza vaccination. For influenza vaccination, results of these estimations are given below and illustrated in figures S.1 and S.2. For pneumococcal influenza, only results for coverage are given as this is the only relevant measure of the four central results.

In general terms, coverage is the proportion of the target population vaccinated. Valid usage is the proportion of the target population vaccinated with funded vaccine. Leakage is the proportion of the purchased doses administered to the non-target population. Unknown usage is the proportion of the purchased doses not otherwise accounted for (see below).

## Influenza vaccination results

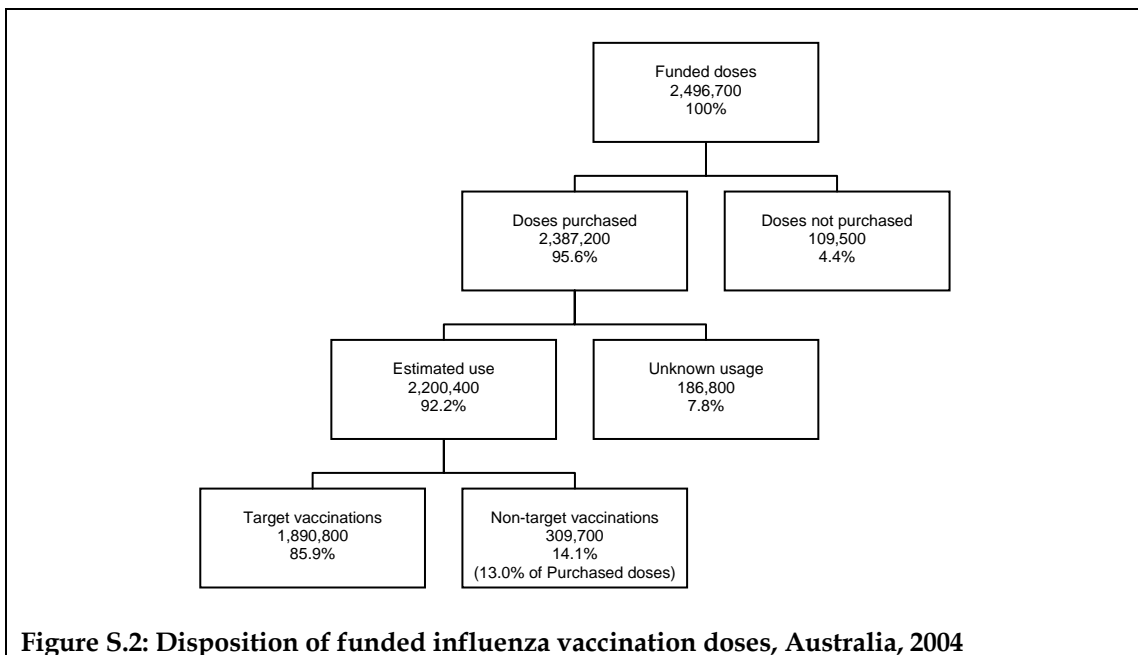
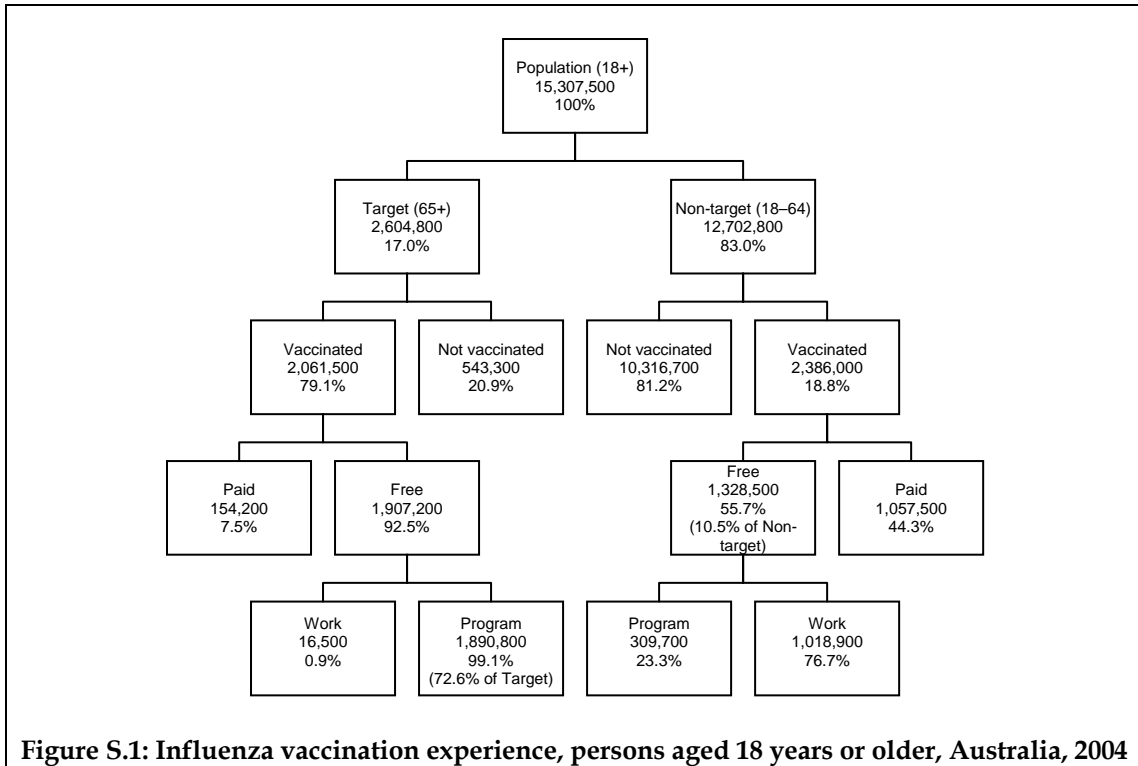
**Coverage:** it is estimated that, of about 2.6 million Australians in the target group, 2.1 million were vaccinated against influenza (*Vaccinated* in Figure S.1), giving an **estimate of coverage of 79.1%**.

**Valid usage:** it is estimated that, of about 2.6 million Australians in the target group, 1.9 million were vaccinated against influenza with vaccine provided under the program (*Program* in Figure S.1), giving an **estimate of valid usage of 72.6%**.

**Leakage:** of 2.4 million purchased doses, 309,700 doses were administered to non-target Australians (*Non-target vaccinations* in Figure S.2), giving an **estimate of leakage of 13.0%**.

**Unknown usage** arises when doses are administered to those beyond the scope of the survey or just remain in refrigerators at the end of the 'season' (doses not used in the season are not used later) or through wastage (that is, loss or destruction). Unknown usage is calculated from purchased doses less valid usage doses less

leakage doses. It is estimated that 186,800 doses were not otherwise counted (*Unknown usage* in Figure S.2), giving an **estimate of unknown usage of 7.8%**.



### Pneumococcal vaccination results

**Coverage:** it is estimated that, of about 2.6 million Australians in the target group, 1.3 million were vaccinated against pneumococcal disease, giving an **estimate of coverage of 51.1%**.

# 1 Introduction

## The impact of influenza and pneumococcal disease in Australia

Influenza is an epidemic disease which sometimes becomes pandemic and from which complications (such as pneumonia and pleurisy) can arise. In Australia in 2002 there were 56 deaths with influenza as an underlying cause, of which 45 were of people aged 65 or older (AIHW National Mortality Database). People in the older age group are at increased risk from influenza.

Pneumococcal pneumonia is the most common form of serious (invasive) pneumococcal disease in adults. Other forms of pneumococcal disease are meningitis and septicaemia. The impact of pneumococcal disease is similar to that of influenza, including an increased burden for older Australians.

Influenza and pneumococcal vaccination are population health interventions that aim to reduce the impact of these diseases.

## The National Influenza Vaccine Program for Older Australians

Through the Program, the Australian Government funds the state governments to purchase vaccine for administration to Australian residents aged 65 years or older. In this report, this group is referred to as the target population or target group. In 2004, each state government was funded to provide one vaccine dose for each target group member in that state (the funded doses).

State governments are responsible for the acquisition and distribution of vaccine to immunisation providers. In 2004, state governments purchased vaccine doses at a nationally fixed rate (the purchased doses). Participation in the program by individuals is voluntary.

## Program evaluation

The Australian Government undertakes an annual evaluation of the program, by way of the Adult Vaccination Survey (formerly the Influenza Vaccine Survey).

The program is designed to cover all and only the people in the target population. It is also intended that the supply of vaccine doses will meet the demand and that over-supply will be minimised. Two aspects of the program are evaluated by studying:

- the proportion of the target population that received influenza vaccine (called coverage)
- the way the supply of free vaccine (the funded doses) was actually used, for example:

- not purchased (funded doses less purchased doses)
- given to people in the target population (valid usage)
- given to people not in the target population (leakage), or
- lost, destroyed, stored inappropriately, or simply not used in the program year (unknown usage).

Leakage is further analysed in terms of two population groups for which vaccination is recommended by the National Health and Medical Research Council (NHMRC): people at increased risk from influenza and its complications, and those caring for people at risk.

Vaccine not used in the program year (part of unknown usage) must be destroyed because the influenza vaccine is formulated each year according to the particular influenza strains circulating at the time.

The evaluation of leakage and unknown usage is clouded by the existence of other Australian Government and state programs that provide free influenza vaccination, such as the National Indigenous Pneumococcal and Influenza Immunisation (NIPII) Program.

## **Pneumococcal vaccination baseline**

Through the National Pneumococcal Vaccination Program for Older Australians, the Australian Government funds the state governments to purchase pneumococcal vaccine for administration to Australian residents aged 65 years or older. In preparation for the evaluation of that program, which started on 1 January 2005, the 2004 Adult Vaccination Survey included questions to establish a pneumococcal vaccination coverage baseline. In this context, coverage is the proportion of the target population vaccinated with the pneumococcal vaccine.

## **The Adult Vaccination Survey**

The 2004 Adult Vaccination Survey (formerly the Influenza Vaccine Survey) is the fifth of its type and the third managed by the Australian Institute of Health and Welfare (AIHW). As in previous years, the 2004 survey used the computer-assisted telephone interview (CATI) survey method.

The survey sample was almost 7,500 people – almost 1,000 in each state – aged 18 years or older.

Individual survey records were weighted according to sex, age group and state. The weighting was calculated so that the weighted contribution of each such group to the analysis was appropriate to the contribution of that sex/age group/state within the Australian population.

## **About this report**

The report presents estimates derived from survey responses weighted to the Australian population aged 18 years or older.

Chapter 2 presents the central analysis for influenza coverage, valid usage, leakage and unknown usage, and pneumococcal coverage.

Chapter 3 describes:

- coverage and valid usage in more detail
- people who paid for the vaccine when they did not need to
- coverage of the non-target group
- two population groups that the NHMRC recommends be vaccinated
- the effect of excluding residents of aged care facilities from the survey.

Only the last section, discussing aged care facilities, includes any analysis of pneumococcal vaccination in this chapter.

Chapter 4 summarises characteristics of the respondents to the survey and the method used.

The appendixes document the governance of the survey, provide the populations underlying the report, give standard error estimates and include the survey questionnaires.

# 2 Main results

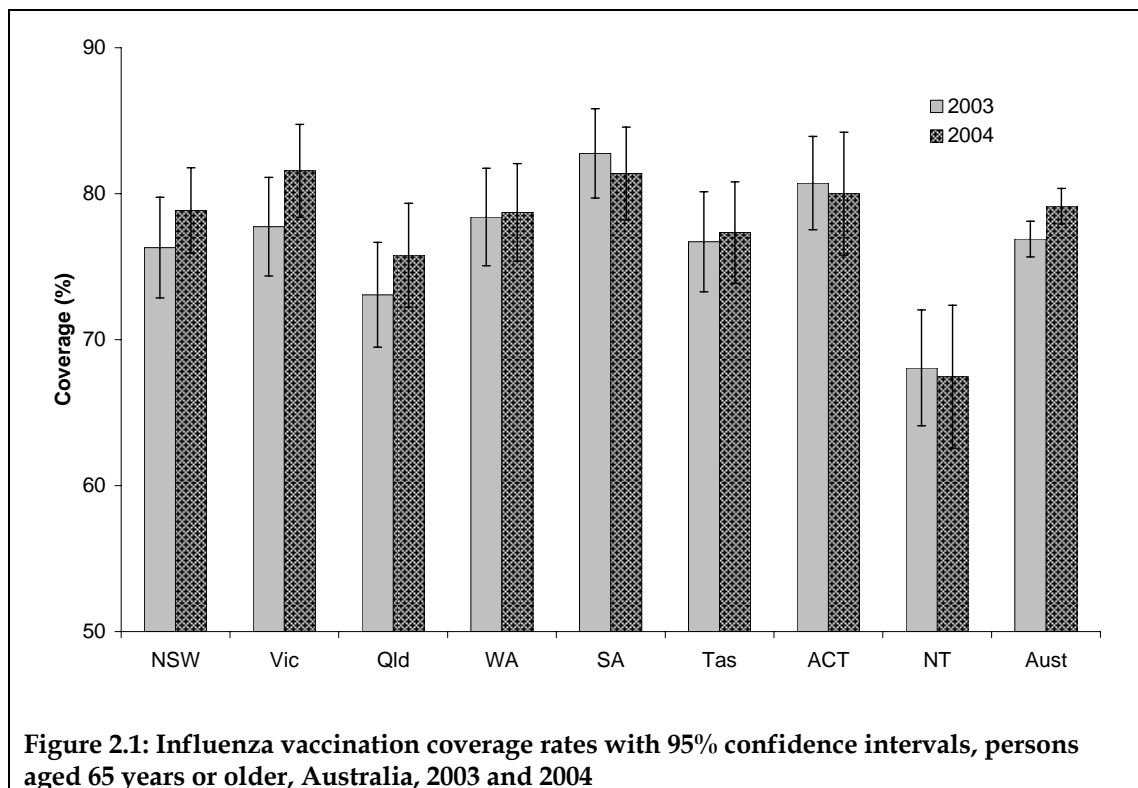
## Introduction

The influenza and pneumococcal results are presented separately, as population statistics (relating to people) and as dose counts (doses provided through the Influenza Program), as appropriate. A person can receive no vaccine, one dose or more than one dose of vaccine. For this survey the most recent, single, vaccination is recorded.

## Influenza vaccination analysis

### Coverage

Coverage is the proportion of the target population vaccinated, in this case against influenza. In Australia in 2004, overall coverage was 79.1% (2.1 million divided by 2.6 million) (Figure 2.1; Table 2.1). State by state, this varied by less than 3.4 percentage points, with the exception of the Northern Territory where coverage was 11.7 percentage points less than that for the country as a whole. For no jurisdiction did the coverage rate differ significantly from that of the previous year.

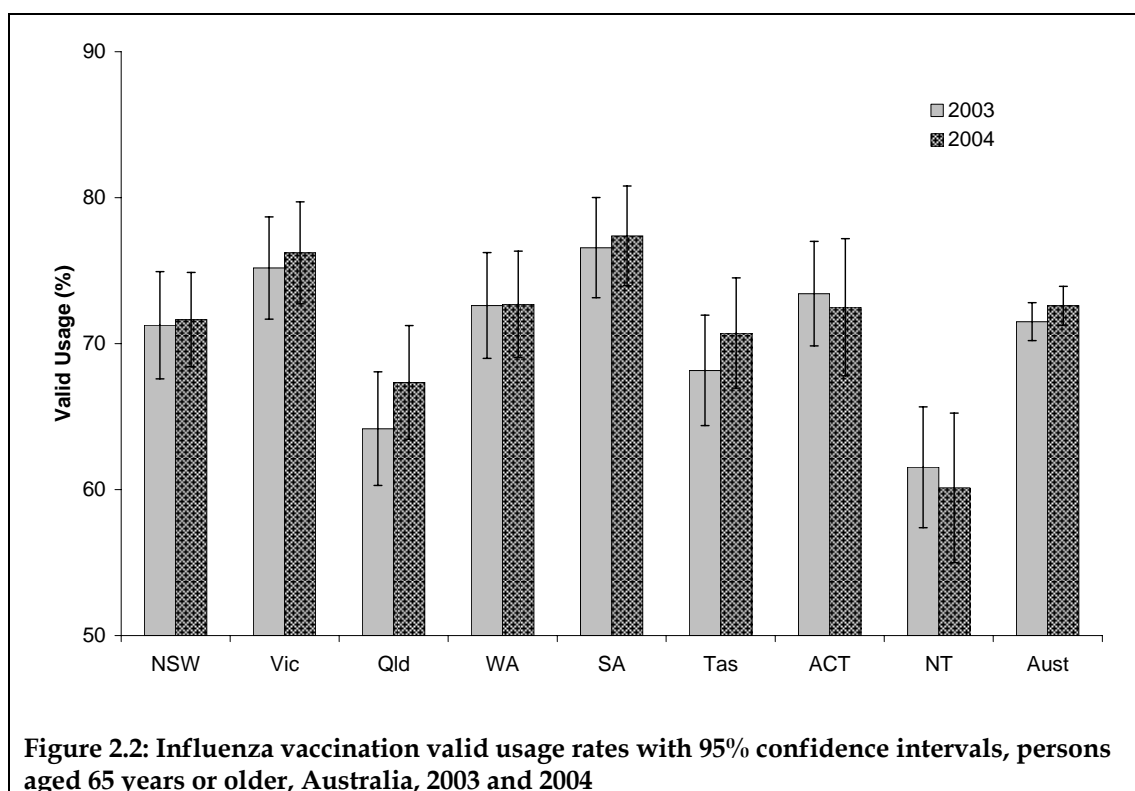




## Valid usage

Valid usage is the proportion of the target population vaccinated against influenza with program-provided vaccine. Valid usage was 72.6% (1.9 million divided by 2.6 million) (Table 2.1). State by state, this varied from the national rate by as much as 12.4 percentage points.

Valid usage and coverage can be further analysed by calculating the proportion of the vaccinated target population who were vaccinated with program-provided vaccine (that is, valid usage divided by coverage) – this was 91.8% (1.9 million divided by 2.1 million) (Table 2.1). This implies more than 8.0% of the vaccinated target population (coverage) either paid for the vaccine or received vaccine provided by their employer.



**Table 2.1: Influenza vaccination coverage and valid usage, persons aged 65 years or older, Australia, 2004**

Measure	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Australia
	(number)								
Target population	907,300	663,600	465,200	230,100	230,800	68,800	30,200	8,800	2,604,800
Vaccinated	715,500	541,200	352,500	181,100	187,800	53,200	24,200	5,900	2,061,500
With program vaccine	650,000	505,800	313,300	167,200	178,600	48,600	21,900	5,300	1,890,800
	(per cent)								
Coverage	78.9	81.6	75.8	78.7	81.4	77.3	80.0	67.5	79.1
Valid usage	71.6	76.2	67.3	72.7	77.4	70.7	72.5	60.1	72.6
As a proportion of coverage	90.9	93.4	88.9	92.3	95.1	91.5	90.6	89.1	91.7

## Influenza dose analysis

This analysis takes as its starting point the number of doses funded by the Australian Government, under the program (2.5 million doses), of which 2.4 million were purchased by the states (Table 2.2).

### Leakage

Leakage is the proportion of the purchased doses administered to the non-target (ineligible) population. Australia-wide in 2004, 309,700 doses were administered to the ineligible population (Table 2.2): estimated leakage for 2004 is 13.0% of purchased doses.

Other Australian and state government programs affect the estimates. For example, in Victoria, the state government provides free influenza vaccines through public hospitals for people aged less than 65 years with risk factors recognised by the NHMRC, in *The Australian Immunisation Handbook*, as indications for vaccination (NHMRC 2003). It is therefore possible that some of what is classified as leakage, that is, vaccine received free by this group, has been appropriately administered by a public hospital in Victoria.

Similarly, the NIPPI Program provides free vaccine to Indigenous people aged 50 years or older and to Indigenous people aged 15 to 50 years old with risk factors recognised by the NHMRC as indications for vaccination. Here, too, it is possible that some of what is classified as leakage is in fact appropriate vaccination under the NIPPI Program. This contribution to apparent leakage is a particular issue for the Northern Territory where a high proportion of the population is Indigenous.

### Unknown usage

Unknown usage is the proportion of purchased doses not otherwise accounted for in this report – total purchased doses less valid usage doses less leakage doses.

Australia-wide in 2004, 186,800 doses were not otherwise accounted for (Table 2.2): estimated unknown usage in 2004 is 7.8% of purchased doses.

Unknown usage arises from program-funded vaccine that:

- is administered to people beyond the scope of the survey – that is, less than 18 years of age or resident in nursing homes or other institutions
- remains at the end of the 'season' (around September) – vaccine not used in the season must be discarded because it is formulated each year according to the circulating strains of the influenza virus, or
- is lost, destroyed or stored inappropriately.

**Table 2.2: Influenza vaccination: disposition of funded doses, Australia, 2004**

Measure	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Australia
	(number)								
Purchased doses	874,600	634,300	375,500	193,900	213,500	65,700	25,000	4,700	2,387,200
Eligible vaccinations	650,000	505,800	313,300	167,200	178,600	48,600	21,900	5,300	1,890,800
Ineligible vaccinations	167,400	21,500	53,300	33,000	19,200	7,600	5,000	2,800	309,700
<i>Leakage (per cent)</i>	19.1	3.4	14.2	17.0	9.0	11.5	20.1	59.2	13.0
Doses not used	57,100	107,100	8,900	—	15,800	9,500	—	—	186,800
<i>Unknown usage (per cent)</i>	6.5	16.9	2.4	—	7.4	14.5	—	—	7.8
Doses not purchased	0	11,200	57,500	22,300	12,600	0	3,400	2,500	109,500
Total funded doses	874,600	645,500	433,000	216,200	226,100	65,700	28,400	7,200	2,496,700

Second and subsequent vaccination doses are excluded from coverage, valid usage and leakage calculations – it is assumed one person means one dose. These excluded doses are therefore counted as unknown usage.

In 2003, the ineligible population of the survey was limited to those aged 40 years or older. If this approach were retained in 2004, the calculation of ‘ineligible vaccinations’ is revised and leakage and unknown usage in Australia would have been calculated as 9.4% and 11.4% respectively (Table 2.3).

**Table 2.3: Influenza vaccination: disposition of funded doses among Australians aged 40 years or older, 2004**

Measure	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Australia
	(number)								
Purchased doses	874,600	634,300	375,500	193,900	213,500	65,700	25,000	4,700	2,387,200
Eligible vaccinations	650,000	505,800	313,300	167,200	178,600	48,600	21,900	5,300	1,890,800
Ineligible vaccinations	107,600	22,200	46,300	15,700	20,100	7,400	4,200	1,300	224,700
<i>Leakage (per cent)</i>	12.3	3.5	12.3	8.1	9.4	11.2	16.7	28.0	9.4
Doses not used	116,900	106,300	15,900	11,000	14,800	9,700	—	—	271,700
<i>Unknown usage (per cent)</i>	13.4	16.8	4.2	5.7	6.9	14.8	—	—	11.4
Doses not purchased	0	11,200	57,500	22,300	12,600	0	3,400	2,500	109,500
Total funded doses	874,600	645,500	433,000	216,200	226,100	65,700	28,400	7,200	2,496,700

## Pneumococcal vaccination analysis

### Coverage

As above, coverage is the proportion of the target population vaccinated, in this case against pneumococcal disease. As discussed, the target population for this analysis is Australians aged 65 years or older. In 2004, overall coverage (vaccination status of ‘Current’) was 51.1% (Table 2.4). A proportion of the target population may have been vaccinated but vaccination currency could not be fully determined. This proportion is not included in further analysis of coverage.

**Table 2.4: Pneumococcal vaccination status, persons aged 65 years or older, Australia, 2004**

Vaccination status	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Australia
	(per cent)								
Current	46.1	62.3	49.3	41.6	53.1	47.5	52.2	42.7	51.1
Possibly current	0.9	1.1	1.1	0.1	1.1	1.9	1.3	1.1	1.0

# 3 Other results

## Influenza coverage and valid usage by sex

The proportion of the target population that was vaccinated (coverage) varied almost as much by sex as it did by state (except for the Northern Territory) (Table 3.1). Nevertheless, the variation in sex-specific coverage was as much as 3.5 percentage points, in the Australian Capital Territory. For the Northern Territory, sex-specific coverage varied by 10.6 percentage points and male coverage was 15.8 percentage points less than the Australian coverage for males.

Across Australia, males in the target population were less likely than their female counterparts to be vaccinated against influenza although this is not true for all states and territories. The same general pattern is found for the proportion of the target population vaccinated under the program (valid usage).

**Table 3.1: Influenza vaccination coverage and valid usage, by sex, persons aged 65 years or older, Australia, 2004**

Sex and measure	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Australia
	(per cent)								
Males									
Coverage	77.2	80.8	75.5	78.9	80.8	77.7	78.0	62.4	78.2
Valid usage	71.6	73.4	68.2	73.3	77.9	70.7	70.2	51.6	72.0
Females									
Coverage	80.2	82.2	76.0	78.5	81.8	77.0	81.6	73.1	79.9
Valid usage	71.7	78.5	66.6	72.2	77.0	70.7	74.4	69.6	73.1

## Vaccinations by month

For the whole population (18 years old or older), for the target population and for the target populations vaccinated within the program, more than 69% of vaccinations occurred in March and April (Table 3.2). However, this was not true for the Northern Territory, where more than 19% of vaccinations occur in February or earlier.

Generally, vaccination of the whole population (aged 18 years or older) is later than that of the program-funded target group – by the end of April, the proportion of vaccinations completed was 73.6% for the whole population (aged 18 years or older) and 77.6% for the target group.

**Table 3.2: Influenza vaccination: month of vaccination, persons aged 18 years or older, Australia, 2004**

Group and month	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Australia
	(per cent)								
Timing of all vaccinations									
January	1.0	0.3	0.3	0.6	0.0	0.4	0.3	4.0	0.6
February	2.4	3.7	4.9	4.3	1.9	6.7	5.6	15.1	3.5
March	35.5	34.6	39.0	26.1	33.3	37.3	35.1	41.5	35.0
April	34.9	33.7	32.3	40.5	38.4	29.0	28.0	17.5	34.5
May	18.2	21.0	15.9	19.5	16.3	14.5	23.1	6.9	18.4
June	6.0	5.2	4.8	3.9	5.2	5.1	6.3	4.9	5.3
July	0.5	0.9	2.1	2.2	2.8	3.5	1.4	1.0	1.4
August	0.9	0.5	0.5	2.8	1.4	3.2	0.1	7.0	1.0
September	0.3	0.0	0.2	0.2	0.1	0.4	0.1	1.8	0.2
October	0.2	0.0	0.1	0.0	0.6	0.0	0.0	0.4	0.1
Timing of target group vaccinations									
January	0.6	0.6	0.7	1.3	0.0	0.9	1.0	3.4	0.7
February	2.6	4.3	7.1	3.2	2.5	6.3	2.0	17.0	4.0
March	41.7	39.7	36.3	34.5	41.5	40.7	37.1	44.8	39.5
April	35.5	31.3	32.1	36.4	31.1	30.2	38.9	18.3	33.4
May	12.0	17.1	15.8	15.4	14.5	11.0	17.5	5.4	14.5
June	4.3	3.8	5.1	5.0	5.2	5.0	2.3	2.5	4.4
July	1.2	2.0	1.0	2.4	2.1	3.1	0.5	3.9	1.6
August	1.0	1.1	1.3	1.5	2.9	2.0	0.4	2.6	1.3
September	0.7	0.0	0.4	0.3	0.1	0.8	0.4	0.0	0.4
October	0.3	0.0	0.2	0.0	0.1	0.0	0.0	2.1	0.2
Timing of program-funded target group vaccinations									
January	0.4	0.7	0.2	1.5	0.0	1.0	1.1	2.5	0.5
February	2.7	4.6	7.6	3.3	2.6	6.5	0.8	18.3	4.2
March	42.5	40.7	37.2	34.3	41.4	39.7	37.8	46.6	40.2
April	35.6	30.7	31.1	35.7	31.4	31.1	40.3	16.7	33.0
May	11.3	17.6	16.1	15.7	14.4	11.0	16.4	5.9	14.5
June	4.1	2.4	4.8	5.0	5.2	4.8	2.1	1.9	3.9
July	1.2	2.1	1.1	2.6	2.3	2.9	0.5	4.0	1.7
August	1.1	1.2	1.4	1.7	2.5	2.2	0.5	2.2	1.4
September	0.7	0.0	0.5	0.4	0.1	0.9	0.5	0.0	0.4
October	0.4	0.0	0.0	0.0	0.1	0.0	0.0	1.8	0.1

## Target population: payment for vaccine

The great majority (93.0% Australia-wide in 2004) of people who were eligible under the program and who were vaccinated paid nothing for the vaccine (Table 3.3). Among these people, 0.8% were paid for by their employer and 92.1% by the program.

Some 7.0% of the vaccinated population who were eligible under the program nevertheless paid for their vaccine—6.7% to a pharmacy and 0.4% direct to the provider of their vaccination.

**Table 3.3: Influenza vaccination: payment for vaccine, persons aged 65 years or older, Australia, 2004**

Proportion	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Australia
	(per cent)								
Paid									
Pharmacy	7.1	5.0	10.2	5.7	4.4	6.7	6.3	5.9	6.7
Direct	0.3	0.1	0.4	0.8	0.4	0.8	1.5	2.2	0.4
Total paid	7.4	5.1	10.6	6.5	4.7	7.5	7.9	8.0	7.0
Free									
Program	91.5	93.6	89.4	92.6	95.3	91.9	90.9	89.6	92.1
Employer	1.1	1.2	0.0	0.9	0.0	0.6	1.2	2.4	0.8
Total free	92.6	94.9	89.4	93.5	95.3	92.5	92.1	92.0	93.0

## Payment by sex and marital status within age

Of those in the target population who paid for the vaccine, 40.7% were aged 65–69 years (Table 3.4). The greater proportions of these vaccinations were for females and for partnered people.

**Table 3.4: Influenza vaccination purchased by target population, by age and sex, by age and marital status, persons aged 65 years or older, Australia, 2004**

Profile	65–69	70–74	75–79	80–84	85–89	90+	All
	(per cent)						
Sex							
Male	16.2	7.3	7.5	4.2	6.1	0.0	41.2
Female	24.5	10.8	7.9	10.8	4.0	0.7	58.8
Marital status							
Never married	2.3	0.3	0.0	1.7	0.0	0.0	4.3
Divorced/separated	6.8	3.9	5.4	5.4	6.2	0.7	28.4
Married/de facto	31.6	14.0	10.1	7.9	3.9	0.0	67.3
Overall	40.7	18.1	15.4	15.0	10.1	0.7	100.0

## ‘Coverage’ of those not in the target group

Of those not in the target group (that is, aged 18–64 years), some 18.8% were vaccinated, 2.4% with program vaccine (Table 3.5). This ‘coverage’ of people not in the target population varied greatly, from a low of 12.8% in the Northern Territory to 22.3% in the Australian Capital Territory.

**Table 3.5: Influenza vaccination of the non-target population, persons aged 18–64 years, Australia, 2004**

Non-target population	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Australia
	(per cent)								
Vaccinated	19.6	18.5	18.8	17.1	18.5	18.1	22.3	12.8	18.8
Used program-funded vaccine	3.9	0.7	2.2	2.6	2.2	2.5	2.3	2.1	2.4

## Use of program-funded vaccine by sex and marital status within age

Of those not in the target population (aged 18–64 years) who used program-funded vaccine, 30.4% were aged 60–64 years (Table 3.6). The greater proportion of these vaccinations was for females in this oldest age group. Overall, non-target females have been greater users of program-funded vaccine than males (52.2% versus 47.8%).

**Table 3.6: Influenza vaccination: use of program vaccine for the non-target population, by age and sex, by age and marital status, persons aged 18–64 years, Australia, 2004**

Profile	18–39	40–44	45–49	50–54	55–59	60–64	All
	(per cent)						
Sex							
Male	12.1	3.4	12.7	1.8	8.2	9.5	47.8
Female	12.8	5.2	4.5	3.1	5.8	20.9	52.2
Marital status							
Never married	22.0	4.3	0.0	0.1	0.0	0.5	26.9
Divorced/separated	0.0	2.5	1.4	0.0	0.6	9.4	14.0
Married/de facto	2.8	1.8	15.8	4.9	13.3	20.5	59.2
Overall	24.8	8.6	17.2	5.0	13.9	30.4	100.0

## Other groups recommended by the NHMRC

*The Australian Immunisation Handbook* (NHMRC 2003) identifies a number of population groups as being at heightened risk from influenza. For two such groups (people with medical risk factors and carers of people with medical risk factors), this section provides:

- a coverage measure – the proportion of the defined group who were vaccinated, both overall and among those not in the target population (that is, not aged 65 years or older)
- the proportion of the defined group vaccinated with program-funded vaccine
- the number of doses that that represents
- an estimate of the contribution to overall leakage of program-funded doses.

Note that these two population groups are not mutually exclusive. There will be overlap between the two populations, that is, people with risk factors who care for other people with risk factors.

### At-risk population

One such group is those Australians suffering from various circulatory, respiratory and immuno-suppressant conditions that put them at further risk from influenza and its complications. Of these, 59.5% were vaccinated in 2004, whereas 41.6% of those at risk but not in the target population were vaccinated (Table 3.7). Of those at risk but not in the target population who were vaccinated, 59.6% (24.8% ÷ 41.6%) paid for their vaccination themselves.

**Table 3.7: Influenza vaccination among the at-risk population, persons aged 18 years or older, Australia, 2004**

Measure	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Australia
	(per cent)								
<b>Total at-risk (persons aged 18 years and over)</b>									
Vaccinated	55.5	65.1	61.0	64.5	53.0	61.2	68.1	57.5	59.5
Program-funded	32.6	39.2	36.1	40.0	38.7	44.6	37.4	23.6	36.1
Employer-funded	6.6	7.2	4.5	10.3	2.5	0.1	21.4	18.1	6.4
Self-funded	16.3	18.7	20.4	14.2	11.8	16.4	9.4	15.8	17.0
<b>At-risk and not in the target population (persons aged 18–64 years)</b>									
Vaccinated	38.7	48.2	45.0	47.2	25.0	42.1	55.4	50.0	41.6
Program-funded	6.6	3.1	7.0	8.4	3.7	14.1	7.7	8.5	6.0
Employer-funded	10.0	13.6	8.3	17.6	4.5	0.0	34.8	22.4	10.8
Self-funded	22.2	31.5	29.7	21.2	16.9	27.9	12.9	19.1	24.8

### Contribution to leakage

In terms of the contribution to leakage, the at-risk non-target group accounted for less than a quarter of the total program leakage (3.0 percentage points out of the total 13.0 percentage points leakage (Tables 3.8 and 2.2)).

**Table 3.8: Influenza vaccination: contribution to leakage from those at risk but not in the target population, persons aged 18–64 years, Australia, 2004**

Measure	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Australia
Purchased doses (number)	874,600	634,300	375,500	193,900	213,500	65,700	25,000	4,700	2,387,200
Vaccinations to non-target at-risk people (number)	34,700	7,500	14,100	7,300	3,400	3,300	1,300	800	72,300
Leakage to at-risk people (per cent)	4.0	1.2	3.8	3.8	1.6	4.9	5.1	16.6	3.0

### Caring for the at-risk population

Many Australians care for at-risk people in aged care and similar facilities. Many others reside with at-risk people (aged less than 65 years). Of these carers, 31.2% were vaccinated in 2004 (Table 3.9). Of these carers not in the target population, 28.8% were vaccinated in 2004, of which a majority (18.6% out of 28.8%) were funded by their employer.



**Table 3.9: Influenza vaccination among carers of the at-risk population, persons aged 18 years or older, Australia, 2004**

Measure	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Australia
	(per cent)								
<b>Total carers (persons aged 18 years and over)</b>									
Vaccinated	33.7	26.3	29.9	30.6	37.9	35.9	36.3	31.3	31.2
Program-funded	10.5	1.6	4.8	11.4	10.5	5.6	7.9	5.6	7.1
Employer-funded	20.3	17.3	14.9	13.6	23.6	12.2	20.6	15.7	18.0
Self-funded	2.9	7.4	10.2	5.5	3.8	18.1	7.8	10.0	6.1
<b>Carers not in the target population (persons aged 18–64 years)</b>									
Vaccinated	30.7	24.7	28.6	27.8	33.8	32.1	33.7	30.2	28.8
Program-funded	7.2	0.0	3.0	8.4	4.2	0.0	4.4	4.0	4.2
Employer-funded	21.0	17.6	15.5	14.1	25.6	12.8	21.4	16.1	18.6
Self-funded	2.5	7.0	10.1	5.2	3.9	19.3	7.8	10.1	5.9

### Contribution to leakage

In terms of the contribution to leakage, carers in the non-target group accounted for 3.1% of purchased doses, less than one-quarter of the total program leakage (Table 3.10).

**Table 3.10: Influenza vaccination: contribution to leakage from carers not in the target population, persons aged 18–64 years, Australia, 2004**

Measure	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Australia
Purchased doses (number)	874,600	634,300	375,500	193,900	213,500	65,700	25,000	4,700	2,387,200
Vaccinations to non-target carers (number)	41,200	0	9,500	15,300	6,400	0	1,000	600	74,000
Leakage to carers (per cent)	4.7	0.0	2.5	7.9	3.0	0.0	4.1	11.8	3.1

## Residents of aged care facilities—exclusion from survey

The CATI method of the survey excludes residents of institutions. Therefore CATI survey results are not representative of the institutional population. A large part of this population resides in aged care facilities. There were an estimated 148,300 aged care facility residents aged 65 years or older at the time of the survey, based on stock-take data provided by the Australian Government Department of Health and Ageing.

A survey of aged care residential facilities was taken at the same time as the main CATI survey. Some 220 facilities were called and 200 usable responses gathered.

From these responses were estimated influenza vaccination coverage and valid usage (85.5% and 83.1% respectively, Australia-wide) (Table 3.11).

Adjusting the main survey coverage and valid usage results for the residential facilities results produces a small increase in the main results.

**Table 3.11: Influenza vaccination: coverage and valid usage adjusted for vaccination of aged care residents, persons aged 65 years or older, Australia, 2004**

<b>Measure</b>	<b>NSW</b>	<b>Vic</b>	<b>Qld</b>	<b>WA</b>	<b>SA</b>	<b>Tas</b>	<b>ACT</b>	<b>NT</b>	<b>Australia</b>
	<b>(per cent)</b>								
Survey results									
Coverage	78.9	81.6	75.8	78.7	81.4	77.3	80.0	67.5	79.1
Valid usage	71.6	76.2	67.3	72.7	77.4	70.7	72.5	60.1	72.6
Residential facilities survey results									
Coverage	90.4	85.9	80.5	71.2	87.9	89.1	79.9	100.0	85.5
Valid usage	88.8	85.0	77.3	65.2	82.1	89.1	79.9	100.0	83.1
Adjusted results									
Coverage	79.5	81.8	76.0	78.3	81.8	78.0	80.0	68.6	79.5
Valid usage	72.6	76.7	67.9	72.3	77.7	71.8	72.9	61.5	73.2

The survey of aged care residential facilities included questions about pneumococcal vaccination of the residents. The survey addressed coverage only and was not a complete assessment of current pneumococcal vaccination status. Notwithstanding this qualification, the adjusted estimate of pneumococcal vaccination is slightly lower than that derived from the main survey (Table 3.12).

**Table 3.12: Pneumococcal vaccination: coverage adjusted for vaccination of aged care residents, persons aged 65 years or older, Australia, 2004**

<b>Measures</b>	<b>NSW</b>	<b>Vic</b>	<b>Qld</b>	<b>WA</b>	<b>SA</b>	<b>Tas</b>	<b>ACT</b>	<b>NT</b>	<b>Australia</b>
	<b>(per cent)</b>								
Survey results									
Coverage	46.1	62.3	49.3	41.6	53.1	47.5	52.2	42.7	51.1
Residential facilities survey results									
Coverage	24.2	25.9	24.5	24.4	24.7	24.0	23.8	23.5	24.7
Adjusted results									
Coverage	44.8	60.2	47.8	40.6	51.3	46.1	50.7	41.8	49.5

# 4 Explanatory notes

## Main survey

### Introduction

The 2004 Adult Vaccination Survey was the fifth survey under current vaccine funding arrangements, and the third managed by the AIHW, which was commissioned by the Australian Government Department of Health and Ageing. A departmental Policy Reference Group supported the AIHW in this task.

The Social Research Centre was selected by competitive tender in August 2004 to conduct the survey. The survey, using CATI, was conducted in October 2004.

Respondents were asked about their recent medical and financial experience of influenza and influenza vaccination, and about their pneumococcal vaccination history.

### Scope

The estimates for 2004 contained in this publication are based on information obtained from persons aged 18 years or older from the populations of all states and territories.

### Respondents

Respondent quotas of 300 people aged 18–64 years old and 700 people aged 65 or older for each state were set. These quotas were not achieved in all states except New South Wales, where an excess of respondents resulted because of an error in the geographic information on the sample file accessed by The Social Research Centre. The AIHW also applied other quality criteria to the inclusion of completed interviews, resulting in a total sample of 7,477 Australians aged 18 years or older (Table 4.1).

Stringent follow-up of potential respondents throughout the sample, and particularly in the Northern Territory, resulted in a substantially larger Indigenous component than in previous years.

**Table 4.1: Respondents, unweighted counts, by sex, eligibility and Indigenous status, 2004 Adult Vaccination Survey**

Characteristic	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Australia
	(number)								
Sex									
Male	477	354	377	370	381	346	240	311	2,856
Female	789	636	582	616	597	613	386	402	4,621
Total	1,266	990	959	986	978	959	626	713	7,477
Eligibility									
Eligible	900	686	668	690	691	668	416	422	5,141
Not eligible	366	304	291	296	287	291	210	291	2,336
Total	1,266	990	959	986	978	959	626	713	7,477
Indigenous status									
Indigenous	12	1	11	10	2	17	3	53	109
Other Australian	1,246	986	947	975	975	939	619	659	7,346
Not ascertained	8	3	1	1	1	3	4	1	22
Total	1,266	990	959	986	978	959	626	713	7,477

## Methodology

### Survey design

The 2004 survey used the CATI survey method. The sample was generated by a random digit dialling technique, using an electronic directory of residential telephone numbers to inform the geography of the generated sample.

The in-scope age range was extended down to 18 years for the 2004 survey so that a more comprehensive assessment of leakage could be made. Some results in this report are also presented for the 40 years or older age group to aid comparison with previous surveys.

### Weighting

Individual survey records were weighted according to sex, age group and state. The weighting was calculated so that the weighted contribution of each such group to the analysis is appropriate to the contribution of that sex/age group/state within the Australian population. The weighting was further adjusted for 'likelihood of selection', based on the number of non-business-related telephone lines to the respondent household and the number of in-scope persons living in the household.

The represented population (aged 18 years or older) was 15.3 million (Table 4.2). Of these, a small majority were female, and 2.6 million were eligible under the program.

**Table 4.2: Respondents, weighted counts, by sex, eligibility and Indigenous status, 2004 Adult Vaccination Survey**

Characteristic	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Australia
	('000)								
Sex									
Male	2,527	1,861	1,445	744	582	177	121	74	7,531
Female	2,607	1,955	1,477	753	605	187	126	66	7,776
Total	5,135	3,815	2,922	1,496	1,187	364	247	141	15,308
Eligibility									
Eligible	907	664	465	230	231	69	30	9	2,605
Not eligible	4,227	3,152	2,456	1,266	957	296	217	132	12,703
Total	5,135	3,815	2,922	1,496	1,187	364	247	141	15,308
Indigenous status									
Indigenous	100	1	67	21	3	10	3	11	216
Other Australian	5,016	3,799	2,854	1,475	1,184	354	244	129	15,054
Not ascertained	19	15	0	1	0	0	0	0	37
Total	5,135	3,815	2,922	1,496	1,187	364	247	141	15,308

## Participation rates

Under the CATI methodology, response management is highly automated, at least in the initial scoping and selection of participants. In the 2004 survey, the participation rate (completed interviews divided by total eligible calls) was 56.9% (Table 4.3).

**Table 4.3: Sample disposition, The Social Research Company CATI, Australia, October 2004**

Sample outcome	Number	Proportion
Completed interviews	7,477	56.9
Refusals/screened out—refused to specify age	4,619	35.2
Unable to contact selected respondent	220	1.7
Inadequate English	360	2.7
Excluded (missing key variables)	458	3.5
<i>Total eligible</i>	<i>13,134</i>	<i>100.0</i>
No one of qualifying age in household	21,966	..
Other out of scope (business/fax/etc.), or not connected	31,760	..
No contact after at least 9 attempts	10,172	..
Other ineligible	280	..
<b>Total numbers contacted</b>	<b>77,312</b>	<b>..</b>

## Editing

Minimal editing was required because of the survey method (CATI)—pilot testing cases and those that could not be weighted were excluded and over-quota cases were retained. The editing having the greatest effect was the reclassification of 330 cases initially coded to the Australian Capital Territory that belonged in New South Wales.

## **Reliability of estimates**

### **Sampling error**

As the estimates are based on a sample, they are subject to sampling variability (that is, the extent to which the sample varies from all persons, had a census been conducted). Estimates in this publication are assumed to be reliable if the relative standard error (the ratio of the sampling error to the population estimate) is less than 25%. Estimates with relative standard errors between 25% and 50% should be interpreted with caution. Estimates with relative standard errors over 50% should be considered unreliable for most practical purposes. To assist readers with these judgments, a table of indicative standard errors is provided in Appendix 2.

### **Non-sampling error**

In addition to sampling errors, the estimates are subject to non-sampling errors. These can arise from errors in transcription of responses, errors in reporting of responses (for example, failure of respondents' memories), and the unwillingness of respondents to reveal their 'true' responses.

### **Limitations of the data**

Excluded from sampling were non-private dwellings (hotels, motels, boarding houses, etc.) and institutional settings (hospitals, nursing homes, other clinical settings such as drug and alcohol rehabilitation centres, prisons, military establishments and university halls of residence). Accordingly, homeless persons were also excluded. The territories of Jervis Bay, Christmas Island and Cocos Island were excluded as well.

## **Comparability with previous surveys**

Limited comparisons have been undertaken. The extension of the in-scope age range to 18 years and older necessarily changes the estimates of leakage and unknown usage. For this reason, some estimates are shown for the 40 years or older age group as well. Also, sample size, in this and past surveys, limits the significance of any derived statistics.

## **Residential facilities survey**

Because it is CATI based and designed for households and individuals, the main survey excludes institutional residents. In particular, the exclusion of aged care residential facilities leaves out a population of particular interest to the program managers – residents aged 65 years or older.

The residential facilities survey was submitted to the Australian Bureau of Statistics' Statistical Clearing House (SCH). While the survey was considered to be in scope for review, the SCH determined it was unlikely that review of the survey would reduce the respondent load enough to warrant that review.

From a listing of residential facilities, 280 were selected at random and some 220 of those called. Of them 200 (directors of nursing and similar) responded to a short survey (see Appendix 4), yielding a participation rate of over 90%.

Respondents were asked how many residents were aged 65 years or older, how many had been vaccinated against influenza and pneumococcal (in 2004) and how many had paid for the influenza vaccine. Weighting of individual records was not undertaken, and no data editing was required.

From these responses were estimated coverage (influenza and pneumococcal) and valid usage (influenza only) Australia-wide and for three residential care facility types (government, not-for-profit and for-profit) separately. The Australian facility-type-specific rates were applied to each state's facility-type populations and the results combined to give state-specific coverage and valid usage.

# Appendix 1: Membership of Policy Reference Group

**Table A1.1: Membership of the Adult Vaccination Survey Policy Reference Group**

<b>Member</b>	<b>Affiliation</b>
Ms Jeanette Baird (Chair)	Australian Government Department of Health and Ageing
Ms Rebecca Hundy	Australian Government Department of Health and Ageing
Ms Maureen Watson	National Immunisation Committee
Dr Tony Watson	National Immunisation Committee
Mr Robert Menzies	National Centre for Immunisation Research and Surveillance
Ms Anna Gilchrist (Secretary)	Australian Government Department of Health and Ageing



# Appendix 2: Standard errors

Table A2.1: Standard errors and relative standard errors, Australia, 2004

<b>Target population</b>											
Prevalence <sup>(a)</sup>	Indicative base population										
	2,600,000		1,300,000		500,000		50,000		5,000		
	SE <sup>(b)</sup>	RSE	SE	RSE	SE	RSE	SE	RSE	SE	RSE	
	(per cent)										
90	0.4	0.5	0.6	0.7	1.0	1.1	3.2	3.5	10.0	11.1	
80	0.6	0.7	0.8	1.0	1.3	1.7	4.2	5.3	13.4	16.7	
70	0.7	1.0	0.9	1.4	1.5	2.2	4.8	6.9	15.3	21.9	
60	0.7	1.2	1.0	1.7	1.6	2.7	5.2	8.6	16.4	27.3	
50	0.7	1.5	1.0	2.1	1.7	3.3	5.3	10.6	16.7	33.4	
20	0.6	2.9	0.8	4.1	1.3	6.7	4.2	21.1	13.4	66.8	
10	0.4	4.4	0.6	6.2	1.0	10.0	3.2	31.7	10.0	100.1	

<b>Non-target population</b>											
Prevalence <sup>(a)</sup>	Indicative base population										
	12,700,000		6,300,000		3,000,000		300,000		30,000		
	SE <sup>(b)</sup>	RSE	SE	RSE	SE	RSE	SE	RSE	SE	RSE	
	(per cent)										
90	0.7	0.7	1.0	1.1	1.4	1.5	4.4	4.8	13.8	15.3	
80	0.9	1.1	1.3	1.6	1.8	2.3	5.8	7.3	18.4	23.0	
70	1.0	1.5	1.5	2.1	2.1	3.0	6.7	9.5	21.1	30.1	
60	1.1	1.8	1.6	2.6	2.3	3.8	7.1	11.9	22.5	37.6	
50	1.1	2.2	1.6	3.2	2.3	4.6	7.3	14.5	23.0	46.0	
20	0.9	4.5	1.3	6.3	1.8	9.2	5.8	29.1	18.4	92.0	
10	0.7	6.7	1.0	9.5	1.4	13.8	4.4	43.6	13.8	138.0	

(a) Prevalence estimate (values taken from tables in the report can be interpolated between those provided in this table).

(b) Standard error expressed in same units as prevalence.

# Appendix 3: Population estimates

Table A3.1: Population estimates, by age and sex, Australia, as at 30 June 2004

Age group	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Australia
(number)									
<b>Males</b>									
0–17	819,500	592,500	492,800	248,900	177,700	60,500	39,000	30,700	2,462,200
18–39	1,055,100	792,000	611,200	317,400	231,000	66,400	57,300	38,400	3,169,100
40–44	258,400	187,300	146,400	77,600	58,600	18,100	12,100	8,700	767,200
45–49	236,800	174,100	136,000	72,700	55,200	17,700	11,300	7,100	711,100
50–54	217,800	158,400	127,200	67,300	51,700	16,700	11,000	6,800	656,900
55–59	201,600	145,400	120,100	60,300	48,300	15,500	9,700	5,200	606,100
60–64	153,500	110,500	90,100	44,000	36,200	12,300	6,300	3,600	456,500
65–69	125,600	90,600	70,200	34,700	30,000	10,000	4,600	2,100	367,800
70–74	104,100	75,900	55,100	27,000	25,500	8,000	3,400	1,200	300,200
75–79	86,500	62,800	43,900	21,300	22,500	6,500	2,800	800	247,100
80–84	54,700	39,600	27,600	13,100	14,300	3,900	1,800	400	155,500
85+	33,100	24,200	17,200	8,000	8,800	2,400	900	300	94,800
<i>Total 18+</i>	<i>2,527,200</i>	<i>1,860,800</i>	<i>1,445,000</i>	<i>743,400</i>	<i>582,100</i>	<i>177,500</i>	<i>121,200</i>	<i>74,600</i>	<i>7,532,300</i>
<i>Total 40+</i>	<i>1,472,100</i>	<i>1,068,800</i>	<i>833,800</i>	<i>426,000</i>	<i>351,100</i>	<i>111,100</i>	<i>63,900</i>	<i>36,200</i>	<i>4,363,200</i>
<i>Total 65+</i>	<i>404,000</i>	<i>293,100</i>	<i>214,000</i>	<i>104,100</i>	<i>101,100</i>	<i>30,800</i>	<i>13,500</i>	<i>4,800</i>	<i>1,165,400</i>
<b>Total all ages</b>	<b>3,346,700</b>	<b>2,453,300</b>	<b>1,937,800</b>	<b>992,300</b>	<b>759,800</b>	<b>238,000</b>	<b>160,200</b>	<b>105,300</b>	<b>9,994,500</b>
<b>Females</b>									
0–17	777,200	565,000	467,600	236,900	169,100	57,300	37,700	28,600	2,339,900
18–39	1,042,200	795,100	607,200	309,700	222,200	67,500	56,500	35,100	3,135,800
40–44	256,800	191,000	149,900	77,600	58,800	18,800	12,800	7,600	773,400
45–49	238,500	177,600	138,000	73,400	56,000	18,000	12,300	6,700	720,700
50–54	218,200	163,400	127,700	66,800	53,200	17,000	11,600	5,800	663,800
55–59	197,500	146,500	116,200	57,100	49,100	15,600	9,800	4,200	596,000
60–64	150,900	110,500	86,400	42,300	36,400	12,100	6,400	2,700	447,700
65–69	129,700	95,700	68,800	35,000	31,800	10,100	4,800	1,500	377,400
70–74	113,900	83,900	57,200	29,100	28,400	8,600	3,800	1,000	325,900
75–79	106,400	78,400	51,700	25,400	28,100	7,800	3,400	700	301,800
80–84	81,400	60,000	39,200	19,200	21,800	6,100	2,600	500	230,900
85+	72,000	52,500	34,300	17,200	19,600	5,400	2,100	400	203,500
<i>Total 18+</i>	<i>2,607,500</i>	<i>1,954,600</i>	<i>1,476,600</i>	<i>752,800</i>	<i>605,400</i>	<i>187,000</i>	<i>126,100</i>	<i>66,200</i>	<i>7,776,900</i>
<i>Total 40+</i>	<i>1,565,300</i>	<i>1,159,500</i>	<i>869,400</i>	<i>443,100</i>	<i>383,200</i>	<i>119,500</i>	<i>69,600</i>	<i>31,100</i>	<i>4,641,100</i>
<i>Total 65+</i>	<i>503,400</i>	<i>370,500</i>	<i>251,200</i>	<i>125,900</i>	<i>129,700</i>	<i>38,000</i>	<i>16,700</i>	<i>4,100</i>	<i>1,439,500</i>
<b>Total all ages</b>	<b>3,384,700</b>	<b>2,519,600</b>	<b>1,944,200</b>	<b>989,700</b>	<b>774,500</b>	<b>244,300</b>	<b>163,800</b>	<b>94,800</b>	<b>10,116,800</b>
<b>Persons</b>									
0–17	1,596,700	1,157,500	960,400	485,800	346,800	117,700	76,700	59,400	4,802,000
18–39	2,097,300	1,587,100	1,218,400	627,100	453,100	133,900	113,800	73,500	6,305,000
40–44	515,200	378,300	296,400	155,200	117,400	36,900	24,800	16,200	1,540,600
45–49	475,200	351,700	274,100	146,100	111,200	35,700	23,600	13,800	1,431,700
50–54	436,000	321,800	254,900	134,100	104,900	33,700	22,600	12,500	1,320,700
55–59	399,100	291,800	236,200	117,500	97,400	31,100	19,500	9,400	1,202,100
60–64	304,500	221,000	176,400	86,300	72,600	24,400	12,700	6,200	904,300
65–69	255,300	186,300	139,000	69,800	61,800	20,000	9,400	3,600	745,200
70–74	218,000	159,800	112,300	56,100	53,900	16,600	7,200	2,200	626,100
75–79	192,800	141,200	95,600	46,600	50,600	14,300	6,200	1,500	548,800
80–84	136,100	99,600	66,800	32,400	36,200	10,100	4,400	800	386,400
85+	105,100	76,800	51,500	25,200	28,300	7,800	3,000	600	298,300
<i>Total 18+</i>	<i>5,134,600</i>	<i>3,815,400</i>	<i>2,921,600</i>	<i>1,496,400</i>	<i>1,187,400</i>	<i>364,500</i>	<i>247,200</i>	<i>140,300</i>	<i>15,309,200</i>
<i>Total 40+</i>	<i>3,037,300</i>	<i>2,228,300</i>	<i>1,703,200</i>	<i>869,300</i>	<i>734,300</i>	<i>230,600</i>	<i>133,400</i>	<i>66,800</i>	<i>9,004,200</i>
<i>Total 65+</i>	<i>907,300</i>	<i>663,700</i>	<i>465,200</i>	<i>230,100</i>	<i>230,800</i>	<i>68,800</i>	<i>30,200</i>	<i>8,700</i>	<i>2,604,800</i>
<b>Total all ages</b>	<b>6,731,300</b>	<b>4,972,900</b>	<b>3,882,000</b>	<b>1,982,200</b>	<b>1,534,200</b>	<b>482,200</b>	<b>323,900</b>	<b>199,700</b>	<b>20,111,200</b>

Source: AIHW National Population Database.

# **Appendix 4: The questionnaires**

The survey instruments follow.

## 2004 Adult Vaccination Survey (SRC0163)

### CATI Final - 1 October 2004

#### INTRODUCTION

Good morning/afternoon/evening. My name is (...). I'm calling on behalf of the Australian Institute of Health and Welfare from the Social Research Centre We're conducting an important public health study (amongst older Australians) on influenza and pneumonia vaccination. Can I have a minute please to see if you're able to help?

(IF NECESSARY: This is a public health study not a sales call)

EXPLAIN IF NECESSARY:

Your telephone number has been automatically generated by computer as it is important to give everyone a chance to participate in this important study not just those people who have their phone number in the White Pages.

#### INTERVIEWER ACTION

L1 LOTE interview

1. Yes
2. No (GO TO Q1)

L2 RECORD LANGUAGE AND SET DEFAULT APPOINTMENT TIME

1. Vietnamese
2. Chinese
3. Italian
4. Croatian
5. Serbian
6. Turkish
7. Greek
8. Hindi
9. Arabic
10. Other (SPECIFY)
11. Don't Know

Q1 Firstly, to see if anyone qualifies, can you please tell me how many people, including yourself and any children, usually live in this household?

1. (SPECIFY 1 to 15) (CONTINUE)
2. Don't know / Can't say (CONTINUE)
3. None live permanently in household (OUT OF SCOPE, TERMINATE)
4. Potential Refusal (OFFER TO SEND OUT EXPLANATORY LETTER ABOUT THE SURVEY)  
PROGRAMMER NOTE: IF REQUESTS LETTER, DISPLAY AND EDIT ADDRESS IF MATCHED SAMPLE (LISTED=4 IN SAMPLE), ELSE COLLECT. USE RANGE CHECKS FOR POSTCODE (0800 TO 9800) AND PRECODES FOR STATES
5. Refusal (GO TO REFUSAL SCRIPT AND TRY DETERMINE AGE COMPOSITION OF HOUSEHOLD)

Q2 (How many of these people are aged / are you) between 18 and 64 years

1. Number given (Specify\_\_\_\_\_) (ALLOWABLE RANGE 1 TO 15)
2. None
3. Don't know / Can't say
4. Refused (GO TO REFUSAL SCRIPT- R4)

Q3 (And how many of these people are aged/ Can I just confirm that you are) 65 years and over

1. Number given (Specify\_\_\_\_\_) (ALLOWABLE RANGE 1 TO 15)
2. None
3. Don't know / Can't say
4. Refused (GO TO REFUSAL SCRIPT - R4)

PRES1 CHECK QUOTAS: IF QUOTA IS FULL GO TO QF1

PRES1 IF ONLY ONE IN-SCOPE RESIDENT IN OPEN QUOTA CONTINUE OTHERWISE GO TO PRES2

- S1 The person selected for this interview is aged (18-64/65 years or over). Is that you / Can I speak to that person please?
1. Person speaking (GO TO S3)
  2. Other person available (GO TO INTRODUCTION THEN S3)
  3. Person not available now (MAKE APPOINTMENT)
  4. Refused (GO TO R4)

PRES2 (QUOTAS IF Q2 CODE > 1OR Q3 CODE 1 > 1 CONTINUE ELSE GO TO S4)

*MORE THAN 1 PERSON AGED OVER 18 or 65*

- S2 Can I please speak to (the person aged over 18 / the person aged over 65 over) who has the next birthday?
1. Person speaking (CONTINUE)
  2. Other person available (CONTINUE)
  3. Person not available now (MAKE APPOINTMENT – SEE PROGRAMMER NOTE ABOVE)
  4. Refused (GO TO R4)

- S3 WHEN TALKING TO RESPONDENT RE-INTRODUCE AS NECESSARY AND SAY: (DISPLAY INTRO)  
If you are willing to help me I only need 5 minutes of your time. Any answers given are completely confidential and protected by the Australian Institute of Health & Welfare Act.

IF ABSOLUTELY NECESSARY SAY:

If you have any concerns about this research project you may contact David Batts at the AIHW on 1800 443 182.

- S4 Is now a convenient time to talk to you?
1. Person available (CONTINUE)
  2. Person not available now (RECORD AGE AND NAME OF RESPONDENT IN APPOINTMENTS FILE)
  3. Refused (GO TO R4)

- S5 Before we begin I need to point out that this call may be monitored for training and quality purposes. Is that OK?
1. Monitor
  2. Do not monitor

#### SECTION D: DEMOGRAPHICS

- DEM1 RECORD GENDER
1. Male
  2. Female

- DEM2 Just to make sure we speak with a good range of people, would you mind telling me your age please?
1. (SPECIFY 18 to 100) (GO TO SECTION A)
  2. Reluctant to answer
  3. Refused

DEM2a Would you mind telling me which of the following age groups you fall in to? (READ OUT)

1. 18 to 19
2. 20 to 24
3. 25 to 29
4. 30 to 34
5. 35 to 39
6. 40 to 44
7. 45 to 49
8. 50 to 54
9. 55 to 59
10. 60 to 64
11. 65 to 69
12. 70 to 74
13. 75 to 79
14. 80 to 84
15. 85 to 89
16. 90 or over
17. Refused

### SECTION A: HAD FLU / HEARD OF FLU INJECTION

This interview has two main sections. The first lot of questions are about influenza and the influenza vaccination, sometimes called the flu shot. The second lot of questions are about the pneumococcal vaccination.

Before we begin our questions about the flu I'm going to describe what I mean by the flu, as it is often confused with the common cold. Symptoms of the flu include all those you get with a common cold, but with the ADDITION of a rapid onset of fever, muscle aches, fatigue and extreme weariness lasting several days. It can also cause serious respiratory complications including pneumonia.

A1 Have you been sick with the flu at all since the 1st of January this year?

1. Yes
2. No
3. Don't Know / Can't Say
4. Refused

A2 In Australia, it's possible to have an influenza vaccination or flu shot or flu injection. This is administered by a doctor or health worker to protect people from catching the flu. Before today, had you heard of the flu injection?

1. Yes
2. No (GO TO C2)
3. Don't Know / Can't Say (GO TO C2)

### SECTION B: FLU INJECTION ADMINISTRATION

#### HEARD OF THE FLU INJECTION

B1 Have you had the flu INJECTION since the 1<sup>st</sup> of January this year?

1. Yes (GO TO B2)
2. No (GO TO B1a)
3. Don't Know / Can't Say (GO TO B2a)
4. Refused (GO TO B2a)

B1a What was the main reason you didn't have a flu injection this year? (Single response)

#### Low Risk / Low Perceived Relevance

1. Don't come into contact with a lot of people who have the flu
2. Only good for elderly people
3. I don't get the flu/rarely get the flu/I seldom fall sick

#### Problems with Vaccine / Injection / Side-effects

4. It doesn't work/is ineffective
5. It brings on the flu/I may get the flu from it/it might make me sick/I fear the side effects
6. Got the flu from it last time/had the worse case of flu from it/had a bad reaction to it/it has side effects on me
7. People I know who've had it got the flu from it
8. People I know have had a bad reaction or complications from it/they have (nearly) died
9. I'm allergic to the flu vaccination/allergic to the egg in it
10. I don't like injections

**Problems with awareness / access / affordability**

11. Did not think about it/ Forgot to ask about it this year
12. Wasn't offered the flu injection by my family doctor/GP
13. Didn't know the flu injection was available to me
14. No time/too busy/didn't get around to it
15. Difficult to get to the doctor
16. Could not afford the vaccine itself
17. Could not afford the GP's/doctor's consultation fee

**Medical Condition / Advice**

18. I have a medical condition or on medication for something else
19. Family doctor/GP said I did not need one

**Other**

- No reason
20. Other
  21. Can't say/don't know/don't recall
  22. Refused

NOW GO TO B2A

**HAD FLU INJECTION THIS YEAR**

B2 What month was that?

1. January
2. February
3. March
4. April
5. May
6. June
7. July
8. August
9. September
10. October
11. Don't know / Can't say
12. Refused

**HEARD OF THE FLU INJECTION**

B2a Did you have a flu injection last year ... that is any time in 2003?

1. Yes
2. No
3. Don't Know / Can't Say
4. Refused

**HEARD OF THE FLU INJECTION**

B2b Do you intend to have a flu injection next year ... that is, any time in 2005?

1. Yes, definitely
2. Yes, probably
3. No, probably not
4. No, definitely not
5. Don't Know / Can't Say
6. Refused

PREB4 (IF B1=1 CONTINUE ELSE GO TO C1)

**HAD FLU INJECTION THIS YEAR**

B4 Now, thinking about the flu injection that you had this year. Who gave you that flu injection? (NOTE: IF HAD MORE THAN ONE, ASK ABOUT MOST RECENT INJECTION)

1. Doctor / GP (Including nurse / sister / health worker employed there)
2. Council clinic / mobile clinic
3. Someone at place of work
4. Someone in a hospital
5. Some other person
6. Don't know / Can't say
7. Refused

*HAD FLU INJECTION THIS YEAR*

B5 When you had the flu injection, did you have to pay in full, in part or not at all for the consultation? I don't mean payment for the vaccine, just the consultation. (PROBE TO CLARIFY)

1. Yes, paid in full (IF NEEDED CLARIFY – Did not get reimbursed at all)(GO TO B7)
2. Yes, paid in part (IF NEEDED CLARIFY – Got partially reimbursed)
3. No, did not pay (IF NEEDED CLARIFY – Didn't pay anything at all – not out of pocket)
4. Don't know / Can't say (GO TO B7)
5. Refused (GO TO B7)

*DID NOT HAVE TO PAY FOR FULL COST OF CONSULTATION*

B6 Why didn't you have to pay (the full cost of/ for) the consultation? (SINGLE RESPONSE)

1. Bulk billed
2. Went to a free clinic
3. Employer paid
4. Covered on pension / veteran's affairs health card
5. Covered by Medicare
6. Because of age
7. Covered by health care card
8. Some other reason
9. Don't know / Can't say
10. Refused

*HAD FLU INJECTION THIS YEAR*

B7 Did you have to pay for the vaccine?

1. Yes
2. No (GO TO B9)
3. Don't Know / Can't Say (GO TO C1)
4. Refused (GO TO C1)

*HAD TO PAY FOR FLU VACCINE*

B8 Was this via prescription and payment to a pharmacist or was it a direct payment to the provider of the vaccine?

1. Pharmacist
  2. Direct payment to provider of vaccine
  3. Other (SPECIFY)
  4. Don't Know / Can't Say
  5. Refused
- (NOW GO TO C1)

*DID NOT HAVE TO PAY FOR FLU VACCINE*

B9 Why didn't you have to pay for the vaccine? (SINGLE RESPONSE ONLY)

1. Bulk billed
2. Went to a free clinic
3. Employer paid
4. Covered on pension / veteran's affairs health card
5. Because of age
6. Because I meet other eligibility criteria
7. Doctor just gave it to me
8. Covered by health care card
9. Some other reason
10. Don't know / Can't say
11. Refused

**SECTION C: DOCTOR RECOMMENDATIONS**

*HEARD OF THE FLU INJECTION (IF A2=1 CONTINUE OTHERWISE GO TO PREC2)*

C1 (Even if you didn't have one), did your doctor recommend that you have a flu injection this year?

1. Yes (GO TO SECTION G)
2. No
3. Don't have a doctor / GP
4. Don't Know / Can't Say
5. Refused



PREC2 IF DOCTOR DID NOT RECOMMEND FLU INJECTION (C1=2 TO 5) OR NOT HEARD OF FLU INJECTION (CODES 2 OR 3 ON A2) CONTINUE OTHERWISE GO TO SECTION G

*DOCTOR DID NOT RECOMMEND INJECTION / NOT HEARD OF THE FLU INJECTION*

C2 Would you have a flu injection if a doctor or GP recommended it to you? (NOTE: If no doctor, probe for answer anyway)  
(PROBE TO CLARIFY)

1. Yes, definitely
2. Yes, probably
3. No, probably not
4. No, definitely not
5. Don't Know / Can't Say
6. Refused

**SECTION G: PNEUMOCOCCAL VACCINATION**

As mentioned earlier we are also interested in whether or not people have been vaccinated against pneumonia. This vaccine is sometimes given at the same time as the flu injection. To be most effective for adults, the pneumonia vaccine usually needs to be given twice at least five years apart.

G1 Have you ever been vaccinated against pneumonia (IF NECESSARY EXPLAIN: This is sometimes called the pneumococcal vaccination of Pneumovax)

1. Yes
2. No (Go to D1a)
3. Don't know (Go to D1a)
4. Refused (Go to D1a)

G2 When were you (last) vaccinated against pneumonia? Was it (READ OUT)

1. Within the last 12 months
2. 12 months to 5 years ago
3. More than 5 years ago
4. Don't know
5. Refused

G3 Had you had a pneumonia vaccination before then?

1. Yes
2. No
3. Don't know
4. Refused

**SECTION D: GENERAL HEALTH**

*ALL*

D1a I've now got a couple of questions about selected health issues that may or may not apply to you. If there's anything you don't want to answer just let me know.

Have you ever had a heart attack or a stroke?

1. Yes (GO TO D2)
2. No
3. Don't know / Can't say
4. Refused

*NO HEART ATTACK OR STROKE (OR DON'T KNOW / REFUSED)*

D1b Do you have chronic heart disease?

1. Yes (GO TO D2)
2. No
3. Don't know / Can't say
4. Refused

*NO CHRONIC HEART DISEASE (OR DON'T KNOW / REFUSED)*

D1c Are you currently on medication that may affect your immune system, for example cortisone tablets (PAUSE – WAIT FOR REPLY), or having cancer treatment (PAUSE – WAIT FOR REPLY), or have you had an organ transplant?

1. Yes to any of above (GO TO D2)
2. No to all of above
3. Don't know / Can't say
4. Refused

*NO MEDICATION THAT AFFECTS IMMUNE SYSTEM /CANCER TREATMENT /ORGAN TRANSPLANT (OR DK/REF)*

D1d Do you have chronic lung disease such as chronic bronchitis or emphysema?

1. Yes (GO TO D2)
2. No
3. Don't know / Can't say
4. Refused

*NO CHRONIC LUNG DISEASE (OR DON'T KNOW / REFUSED)*

D1ea Do you have diabetes?

1. Yes
2. No (GO TO D1fa)
3. Don't know / Can't say (GO TO D1fa)
4. Refused (GO TO D1fa)

*HAS DIABETES*

D1eb Does that require regular hospitalisation or medical follow up?

1. Yes (GO TO D2)
2. No
3. Don't know / Can't say
4. Refused

*NO DIABETES (OR DON'T KNOW / REFUSED)*

D1fa Do you have severe Asthma?

1. Yes
2. No (GO TO D2)
3. Don't know / Can't say (GO TO D2)
4. Refused (GO TO D2)

*HAS SEVERE ASTHMA*

D1fb Have you required hospitalisation for this in the last 12 months?

1. Yes
2. No
3. Don't know / Can't say
4. Refused

*ALL*

D2 Are you a health care provider, or do you work at a nursing home or other residential aged care facility?

1. Yes (GO TO E1)
2. No
3. Don't know / Can't say
4. Refused

PRED3 (IF ANOTHER PERSON IN HH AGED UNDER 65 CONTINUE ELSE GO TO E1) (IF SINGLE PERSON HOUSEHOLD AND PERSON IS AGED LESS THAN 65 GO TO E1)

D3 You mentioned earlier that some of the people in this household are aged under 65 years. Do any of these people have any long-term illnesses such as heart disease, stroke, chronic lung disease, chronic bronchitis, emphysema, or cancer that they are receiving treatment for?

1. Yes
2. No
3. Don't know / Can't say
4. Refused

## SECTION E: DEMOGRAPHICS

ALL

E1 Now just a final few questions to make help us analyse the results. Are you of Aboriginal or Torres Straight Islander origin?

1. Yes
2. No (GO TO E3)
3. Don't know / Can't say (GO TO E3)
4. Refused (GO TO E3)

ABORIGINAL OR TORRES STRAIGHT ISLANDER ORIGIN

E2 Are you...(READ OUT CODES 1 TO 3)?

1. Aboriginal
2. Torres Straight Islander
3. Both Aboriginal and Torres Straight Islander
4. Don't know / Can't say
5. Refused

ALL

E3 Can you please tell me your current marital status? (PROMPT IF NECESSARY)

1. Single / never married
2. Widowed
3. Divorced
4. Separated (but not divorced)
5. Married (including living with a partner / de facto relationship)
6. Refused

## SECTION F: SAMPLING

ALL

F2 How many different fixed line telephone numbers does this household have for personal use? (PAUSE) (IF MORE THAN 'ONE' CLARIFY: Please don't count numbers mobile numbers or numbers ONLY used for the internet or fax or business purposes).

1. (SPECIFY 1 to 10)
2. None - should not be listed
3. Don't Know / Can't Say
4. Refused

ALL

F3 May I please have your postcode?

1. Postcode (SPECIFY 0001 to 9999)
2. Don't know postcode (SPECIFY SUBURB / TOWN)
3. Refused

T1 TERMINATION SCRIPT FOR OVER QUOTA

Thanks anyway, but for this survey we need to speak to people aged 65 years and over?

R1 REFUSAL SCRIPT

R2 Just before I hang up it would help us tremendously if you could tell us how many people in this household are aged 18 and older

1. None
2. One
3. Two
4. Three
5. Four
6. Five
7. Six or more
8. Don't know / Can't say (GO TO R4)
9. Refused (GO TO R4)

R3 And how many of these people are aged 65 years and over

1. None
2. One
3. Two
4. Three
5. Four
6. Five
7. Six or more
8. Don't know / Can't say
9. Refused

NOW GO TO END

R4 OK, that's fine, no problem, but could you just tell me the main reason you do not want to participate, because that's important information for us?

1. No comment / just hung up
2. Too busy
3. Not interested
4. Too personal / intrusive
5. Don't like subject matter
6. Don't believe surveys are confidential / privacy concerns
7. Silent number
8. Don't trust surveys / government
9. Never do surveys
10. 5 minutes is too long
11. Get too many calls for surveys / telemarketing
12. Not a residential number (business, etc
13. Too old / frail / deaf / unable to do survey
14. Will only do survey if send letter (GO BACK TO Q1 AND RECORD DETAILS)
15. Other (SPECIFY)

GO TO END

QF1 Thanks for being prepared to help, but there's no one in your household that qualifies for the survey. Thanks again (RECORD AS QUOTA FULL)

END That's the end of survey. Thanks very much for your time. Just in case you missed it my name is (...) and this survey was conducted on behalf of the Australian Institute of Health & Welfare. Thank you for your help.

INTERVIEWER RECORD: Interview conducted in

1. English
2. Other language

### Interviewer Declaration

I certify that this is a true, accurate and complete interview, conducted in accordance with the briefing instructions, the IQCA standards and the MRSA Code of Professional Behaviour (ICC/Esomar). I will not disclose to any other person the content of this questionnaire or any other information relating to the project.

Interviewer name:

Interviewer I.D:

Signed:

Date

ONLY IF NECESSARY:

If you have any queries about this survey, or would like any further information, you can ring the Australian Institute of health and Welfare on 1800 443 182.

**Questionnaire**  
**2004 Adult Vaccination Survey – Residential facilities**

**Provider:**

**Number:**

**Service:**

**Number:**

**State:**

**Class:**

**Interviewer:**

**Date:**

**Start time:**

[Good morning/ good afternoon]! My name is [Name, reasonably formal].

[If necessary, confirm residential facility, as opposed to administrative centre or head office]: is that «Service\_name»?

[No:] Do you know how I can contact their Director of Nursing? [Record details and start again!]

I'm gathering information about influenza and pneumococcal vaccination for the Australian Institute of Health and Welfare. I would like to speak to your Director of Nursing or someone in the same sort of role – is that you?

[Yes:] Do you have two or three minutes now or should I call back later?

[Yes:] Thank you. [Go to Questions]

[Call back:] When would suit you best? [Record direct contact number and details] Thank you – I'll call you then.

Name:  
Number:  
When:

[No:] [If necessary] who should I talk to? How could I contact them? [Record details and start again!]

[When you have contacted the Director of Nursing or person in similar role]

We've presently doing a national survey of households by telephone, but we can't call residents of nursing homes and hostels in the same way.

Before we start , could you confirm the number of beds you have occupied at the moment?

Jun 2004:

Oct 2004:

Q1. We're interested in older Australians – how many of your residents are 65 years old or older?

[No useful response] I am sorry but we can't go any further without this information. Thank you for your time today. [End call.]

Firstly for influenza vaccination...

Q2. Can you tell me how many of these older residents have been vaccinated against **influenza**, since January this year?

[No useful response] I am sorry but we can't go any further without this information. Thank you for your time today. [End call.]

Q3. Do you know [can you estimate] how many of these vaccinated older residents paid for the vaccine (I don't mean payment for the doctor's attendance)?

Q4. [If it is obvious, from earlier conversation, record what you have learned – otherwise] Do you have a specific influenza vaccination policy?

[No: go to End]

Q5. How does it work? [Record]

Now for the pneumococcal vaccination...

Q6. Can you tell me how many of your residents aged 65 or older have been vaccinated against **pneumonia**, in the last 12 months?

Q7. As you probably know, **pneumococcal** vaccination should be given to an older adult twice, at least five years apart. Can you tell me how many of these older residents would be vaccinated against **pneumococcal** disease?

This concludes the survey – thank you. The information you have provided will be used only for research purposes and its collection, storage and use are protected under the provisions of the Australian Institute of Health and Welfare Act 1987. Thank you again.

Time of completion:

# Bibliography

AIHW (Australian Institute of Health and Welfare) 2004. 2003 Influenza Vaccine Survey: summary results. AIHW cat. no. PHE 51. Canberra: AIHW.

NHMRC (National Health and Medical Research Council) 2003. The Australian immunisation handbook. 8th edn. Canberra: NHMRC.