

NEW ISSUE



**AUSTRALIAN HEALTH SURVEY
SABIN AND TRIPLE ANTIGEN
VACCINATION**

**(persons aged 2 to 5 years)
1977-78**

CATALOGUE NO. 4316.0

AUSTRALIAN BUREAU OF STATISTICS Canberra

AUSTRALIAN HEALTH SURVEY

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(Persons aged 2 to 5 years)

1977-78

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Catalogue No. 4316.0

AUSTRALIAN BUREAU OF STATISTICS

INQUIRIES

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CATALOGUE NO. 4316.0

NOON 21 APRIL 1980

AUSTRALIAN HEALTH SURVEY SABIN AND TRIPLE ANTIGEN VACCINATION (Persons aged 2 to 5 years) 1977-78

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MAIN FEATURES

In the Australian Health Survey a sample of persons in private households was interviewed about illnesses and use of health services. Data were collected on the immunisation status of persons aged 2 to 5 years in relation to Sabin and Triple antigen vaccinations. The following results relate to the data collected on vaccinations for persons aged 2 to 5 years:

3.5 per cent of the Australian population aged 2 to 5 years had not received any immunisation against Poliomyelitis (Sabin vaccine).

The most frequently reported number of doses (for Australia as a whole) of Sabin vaccine was three (39.4 per cent of persons aged 2 to 5 years). However due to differences between States in the recommended number of doses (see explanatory notes, paragraph 9) the most frequently reported number of doses varied between States. This ranged from two doses in Tasmania (56.8 per cent) to four doses in N.S.W. and Queensland (38.5 and 43.1 per cent respectively).

2.2 per cent of the Australian population aged 2 to 5 years had not received any doses of Triple antigen vaccine for immunisation against Diphtheria, Tetanus and Whooping Cough.

The most frequently reported number of doses (for Australia as a whole) of Triple antigen vaccine was four (47.5 per cent of persons aged 2 to 5 years). However for South Australia and the Northern Territory the most frequently reported number of doses was three.

The centres from which Sabin and Triple antigen vaccine were most frequently received were 'Local council or baby health centre only' (69.6 and 57.8 per cent of persons aged 2 to 5 years for Sabin and Triple antigen vaccines respectively).

8.5 per cent of persons aged 2 to 5 years whose mother left school before 15 years of age had received no doses of Sabin vaccine compared with 2.5 per cent of persons whose mother left school at 15 years or older. A similar relationship was not evident for persons receiving no doses of Triple antigen vaccine.

EXPLANATORY NOTES

Introduction

This publication contains estimates from the Australian Health Survey, based on information obtained from a sample of households during the 1977-78 financial year.

2. Other publications from the survey contain tables on different aspects of the survey. A description of all topics collected in the survey is contained in *Australian Health Survey 1977-78 Information Paper* (4340.0).

3. The main objective of the survey was to obtain information about the health of Australians and the use of and need for various health related services and facilities.

Scope and coverage

4. Interviews were conducted at a random sample of private dwellings from all parts of Australia excluding rural Northern Territory. Certain groups of persons, such as occupants of non-private dwellings (e.g. hospitals, motels, hotels), diplomatic personnel and persons from overseas touring or holidaying in Australia, were excluded from the survey.

Survey method

5. Vaccination questions were only asked about persons aged 2 to 5 years. Wherever possible the information was obtained from the mother of the person concerned. The answers to these questions were not necessarily based on reference to any vaccination records.

Definitions

6. *Doses* - refers to the number of doses or injections received to immunise the person against the particular disease.

7. *Sabin* - refers to doses of oral vaccine received to immunise against poliomyelitis. Salk vaccine (injected) would not have been generally available in Australia to persons aged 2 to 5 years at the time of the survey. The few cases where Salk vaccine may have been administered, e.g. to some persons immunised overseas, have also been included in this class.

8. *Triple antigen* - refers to vaccination received to immunise against all three diseases; diphtheria, tetanus and pertussis (whooping cough).

NOTE: At the time of the survey Combined Diphtheria and Tetanus vaccination (CDT) was only recommended as a booster at school entry (approximately 5 years old) and in the relatively few cases where adverse reactions to the whooping cough component of the Triple antigen vaccine were apparent. CDT vaccinations were excluded from the survey. It is possible, however, that some respondents included doses of CDT when asked about doses of Triple antigen.

Recommended schedules for immunisation

9. *Number of doses* - the 85th session of the National Health and Medical Research Council (N.H.&M.R.C.) in June 1978 recommended that a uniform schedule of primary immunisation against diphtheria, tetanus, pertussis and poliomyelitis be adopted throughout Australia. Previously State differences in schedules in relation to the number and timing of these types of immunisation had caused some confusion for families with young children moving between States. The new schedule also attempted to reduce the number of visits needed to complete the series by scheduling more than one vaccination at a time where practical (i.e. both Sabin and Triple antigen vaccinations administered at the same visit).

10. This schedule was revised slightly at the 86th session of the N.H.&M.R.C. held in October 1978 and is now as follows:

Age	Disease	Agent
2 months	Diphtheria-tetanus-pertussis Poliomyelitis	Triple antigen Sabin
4 months	Diphtheria-tetanus-pertussis Poliomyelitis	Triple antigen Sabin
6 months	Diphtheria-tetanus-pertussis Poliomyelitis	Triple antigen Sabin
18 months	Diphtheria - tetanus	Combined Diphtheria - Tetanus (CDT)
5 years or prior to school entry	Diphtheria - tetanus Poliomyelitis	CDT Sabin

11. However during the survey period July 1977 to June 1978, and prior to it, the recommended immunisation schedules varied between States. The recommended number of doses which should have been received by the age of 18 months and at age 5 years for each State at the time of the survey was:

	18 months		5 years (approx.)	
	Sabin	Triple Antigen	Sabin	Triple Antigen
N.S.W.	4	4	5	4
Vic.	4	4	5	4
Qld	4	4	4	4
S.A.	3	4	3	4
W.A.	3	4	3	4
Tas.	2	4	2	4
N.T.	3	4	3	4
A.C.T.	3	4	3	4

Sample design

12. Households were randomly selected for inclusion in the survey, using a stratified multistage area sample design. Approximately 15,000 dwellings were selected for inclusion in the survey.

Estimation procedure

13. The estimates given in this publication were derived by use of a ratio estimation procedure based on the age/sex characteristics and distribution of the population of Australia.

Reliability of the estimates

14. Since the estimates are based on a sample they are subject to sampling variability (see technical note, page 16, for further details). Some figures in this publication are replaced or preceded by the symbol *. Estimates preceded by this symbol have a standard error of between 25 and 50 per cent and care should be exercised in using them because they are subject to such high errors. Estimates which are replaced with this symbol have a standard error greater than 50 per cent.

15. In addition to sampling errors, the survey results are subject to non-sampling errors, i.e. those inaccuracies that may occur because of imperfections in reporting by interviewers or respondents, processing errors and non-response. 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.

16. The following factors should be considered in interpreting the estimates in this publication:

- The answers to the questions on immunisation were based on the knowledge of one person in a household (generally the mother of the person) and were not necessarily based on reference to any immunisation records.
- Some persons would have had Combined Diphtheria and Tetanus vaccinations (CDT) as a booster at school entry or where adverse reactions to the whooping cough component of the Triple antigen vaccine were apparent. While the survey questions refer specifically to Triple antigen it is possible that some persons who received CDT vaccine included them in the Triple antigen doses.
- As a result of the differences between States in relation to immunisation schedules, reported doses may vary accordingly between States.

Related publications

17. Other ABS publications which may be of interest include:

Australian Health Survey 1977-78, Information Paper (4340.0)

Australian Health Survey Bulletin No. 1 September 1977 (Preliminary) (4309.0)

Australian Health Survey Bulletin No. 2 December 1977 (Preliminary) (4310.0)

Australian Health Survey, 1977-78 (4311.0)

18. All current publications produced by the ABS are listed in *Catalogue of Publications* (1101.0) which is available free of charge from any ABS office.

Symbols and other usages

- ... not applicable
- * subject to sampling variability too high for most practical purposes. See explanatory notes, paragraph 14.

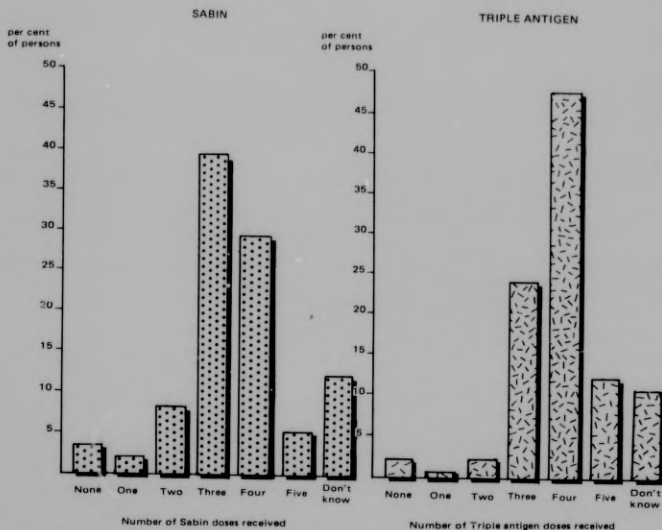
19. Where figures have been rounded, discrepancies may occur between sums of the component items and totals. Published percentages are calculated prior to rounding of figures and therefore some discrepancy may exist between these percentages and those that could be calculated from the rounded figures.

AUSTRALIAN HEALTH SURVEY 1977-78

TABLE 1. SABIN AND TRIPLE ANTIGEN VACCINATIONS : NUMBER OF DOSES RECEIVED BY PERSONS AGED 2 TO 5 YEARS, BY SEX ('000 PERSONS)

Number of doses	Sabin vaccine				Triple antigen vaccine			
	Males	Females	Persons		Males	Females	Persons	
			Number	Percent			Number	Percent
None	17.6	17.5	35.1	3.5	*8.8	13.4	22.3	2.2
One	12.7	9.2	21.9	2.2	*3.8	*2.8	*6.6	*0.7
Two	41.2	36.4	77.6	7.8	9.3	11.2	20.5	2.1
Three	184.4	208.5	393.0	39.4	115.3	123.3	238.6	23.9
Four	151.3	140.6	291.9	29.3	243.7	229.7	473.3	47.5
Five or more	29.5	21.1	50.6	5.1	62.2	58.3	120.5	12.1
Don't know	67.2	59.4	126.5	12.7	61.0	53.9	114.9	11.5
Total persons	504.0	492.7	996.7	100.0	504.0	492.7	996.7	100.0

CHART A SABIN AND TRIPLE ANTIGEN VACCINATIONS : NUMBER OF DOSES RECEIVED BY PERSONS AGED 2 TO 5 YEARS

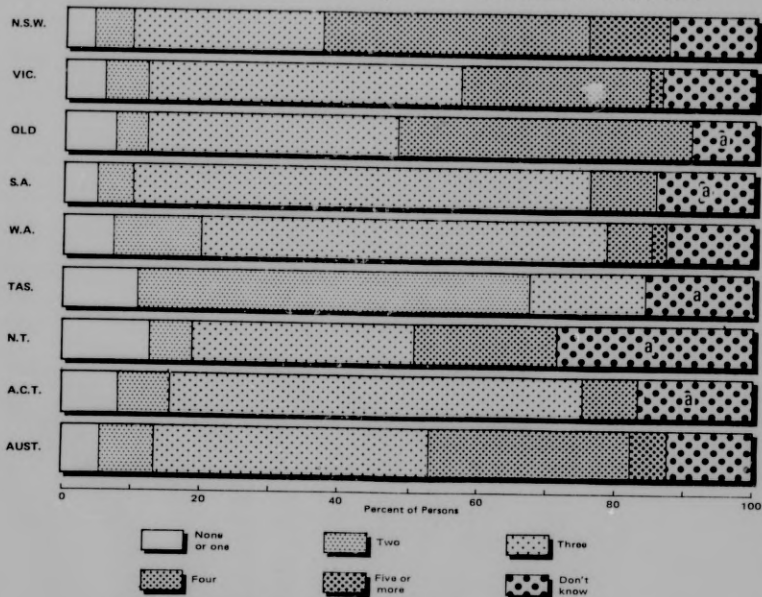


AUSTRALIAN HEALTH SURVEY 1977-78

TABLE 2. SABIN VACCINATION : NUMBER OF DOSES RECEIVED BY PERSONS AGED 2 TO 5 YEARS, BY STATE

Number of doses	N.S.W.	Vic.	Qld	S.A.	W.A.	Tas.	N.T.	A.C.T.	Aust.
'000 PERSONS									
None	*7.6	10.3	8.0	*1.9	*3.4	*2.3	*0.6	*1.0	35.1
One	*7.3	*4.7	*3.0	*2.2	*2.9	*1.2	*0.2	*	21.9
Two	20.1	16.4	*6.6	*4.3	10.5	18.1	*0.4	*1.3	77.6
Three	99.1	119.3	52.4	54.8	49.7	5.3	2.1	10.3	393.0
Four	139.8	72.5	62.9	8.0	*5.6	*	1.4	*1.4	291.9
Five or more	42.1	*4.8	*	*	*1.8	*	*	*	50.6
Don't know	47.4	36.1	11.8	11.4	10.5	4.6	1.8	3.0	126.5
Total persons	363.4	264.1	146.0	83.1	84.3	31.8	6.6	17.4	996.7
PERCENTAGE OF PERSONS									
None	*2.1	3.9	5.5	*2.3	*4.0	*7.1	*9.5	*5.6	3.5
One	*2.0	*1.8	*2.0	*2.6	*3.5	*3.8	*3.3	*	2.2
Two	5.5	6.2	*4.5	*5.2	12.4	56.8	*6.1	*7.4	7.8
Three	27.3	45.2	35.9	66.0	58.9	16.7	31.8	59.4	39.4
Four	38.5	27.5	43.1	9.6	*6.6	*	20.8	*8.0	29.3
Five or more	11.6	*1.8	*	*	*2.1	*	*	*	5.1
Don't know	13.0	13.7	8.1	13.7	12.4	14.6	26.5	17.1	12.7
Total persons	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

CHART B SABIN VACCINATION : NUMBER OF DOSES RECEIVED BY PERSONS AGED 2 TO 5 YEARS, BY STATE



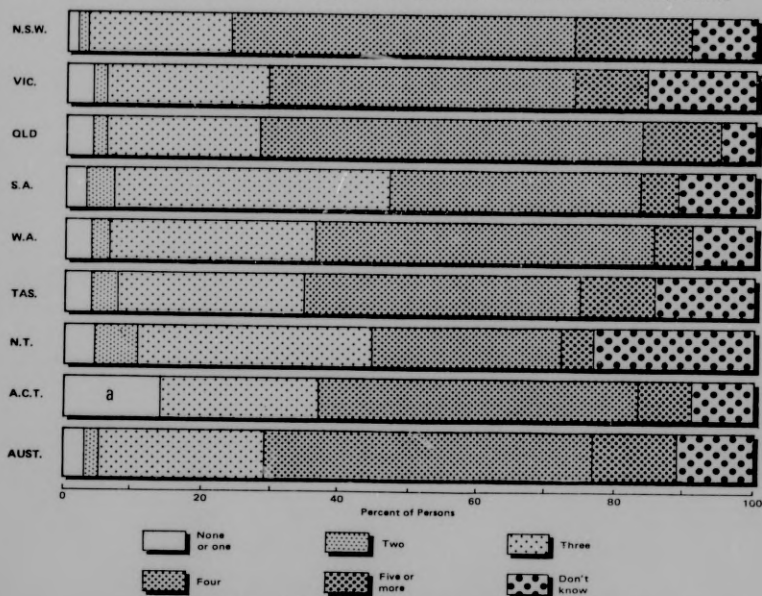
a Includes remaining categories which cannot be shown separately due to high relative standard errors.

AUSTRALIAN HEALTH SURVEY 1977-78

TABLE 3. TRIPLE ANTIGEN VACCINATION: NUMBER OF DOSES RECEIVED BY PERSONS AGED 2 TO 5 YEARS, BY STATE

Number of doses	N.S.W.	Vic.	Qld	S.A.	W.A.	Tas.	N.T.	A.C.T.	Aust.
'000 PERSONS									
None	*4.2	*7.5	*4.1	*1.7	*1.6	*1.2	*0.3	*1.7	22.3
One	*	*2.3	*	*	*	*	*	*	*6.6
Two	*4.9	*5.2	*3.0	*3.5	*2.0	*1.2	*0.4	*	20.5
Three	74.8	59.7	32.1	32.8	24.5	8.5	2.2	4.0	238.6
Four	181.3	116.8	80.9	30.5	41.2	12.8	1.8	8.1	473.3
Five or more	61.3	27.8	17.0	*4.7	*4.7	3.3	*0.3	*1.4	120.5
Don't know	36.2	44.9	7.6	9.3	9.0	4.7	1.6	*1.5	114.9
Total persons	363.4	264.1	146.0	83.1	84.3	31.8	6.6	17.4	996.7
PERCENTAGE OF PERSONS									
None	*1.2	*2.8	*2.8	*2.0	*1.9	*3.8	*4.3	*9.9	2.2
One	*	*0.9	*	*	*	*	*	*	*0.7
Two	*1.4	*2.0	*2.1	*4.2	*2.4	*3.9	*6.3	*	2.1
Three	20.6	22.6	22.0	39.5	29.0	26.8	33.6	22.9	23.9
Four	49.9	44.2	55.4	36.7	48.9	40.2	27.6	46.3	47.5
Five or more	16.9	10.5	11.6	*5.7	*5.6	10.5	*4.4	*7.9	12.1
Don't know	10.0	17.0	5.2	11.2	10.7	14.8	23.7	*8.9	11.5
Total persons	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

CHART C TRIPLE ANTIGEN VACCINATION: NUMBER OF DOSES RECEIVED BY PERSONS AGED 2 TO 5 YEARS, BY STATE



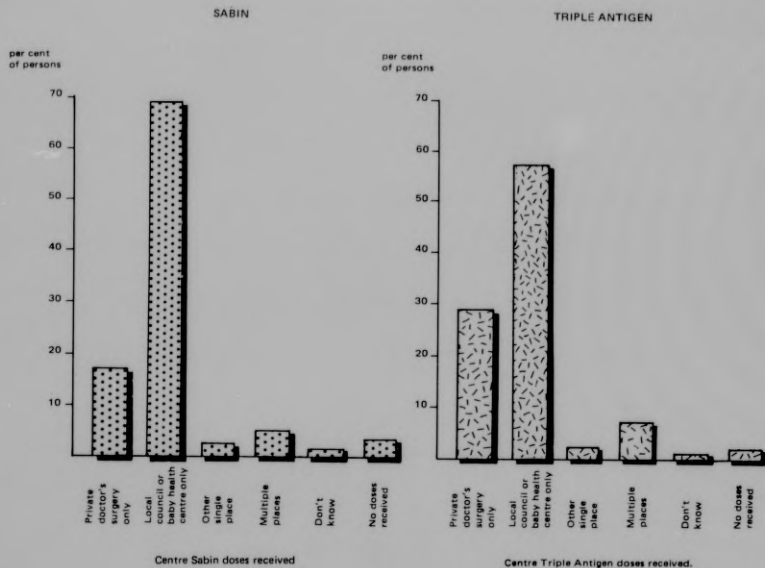
a Includes the category "Two Doses" which cannot be shown separately due to high relative standard error.

AUSTRALIAN HEALTH SURVEY 1977-78

TABLE 4. SABIN AND TRIPLE ANTIGEN VACCINATIONS: CENTRE WHERE PERSON AGED 2 TO 5 YEARS WAS IMMUNISED, BY SEX ('000 PERSONS)

Centre of immunisation	Sabin vaccine				Triple antigen vaccine			
	Males	Females	Persons		Males	Females	Persons	
			Number	Per cent			Number	Per cent
Private doctor's surgery only	96.0	77.4	173.4	17.4	152.8	135.8	288.5	29.0
Local council or baby health centre only	346.7	347.5	694.2	69.6	288.4	287.9	576.2	57.8
Other single place	11.5	13.4	24.9	2.5	10.6	12.9	23.5	2.4
Multiple places	25.4	28.2	53.6	5.4	37.5	37.1	74.5	7.5
Don't know	*6.8	*8.8	15.5	1.6	*6.0	*5.7	11.6	1.2
No doses received	17.6	17.5	35.1	3.5	*8.8	13.4	22.3	2.2
Total persons	504.0	492.7	996.7	100.0	504.0	492.7	996.7	100.0

CHART D SABIN AND TRIPLE ANTIGEN VACCINATIONS: CENTRE WHERE PERSON AGED 2 TO 5 YEARS WAS IMMUNISED

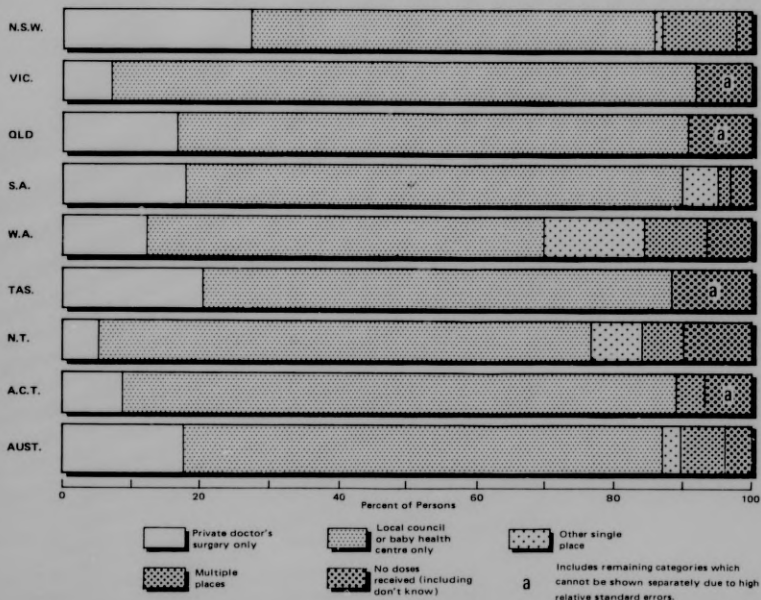


AUSTRALIAN HEALTH SURVEY 1977-78

TABLE 5. SABIN VACCINATION : CENTRE WHERE PERSON AGED 2 TO 5 YEARS WAS IMMUNISED, BY STATE

Centre of immunisation	N.S.W.	Vic.	Qld	S.A.	W.A.	Tas.	N.T.	A.C.T.	Aust.
'000 PERSONS									
Private doctor's surgery only	98.3	17.8	24.1	14.8	10.1	6.5	*0.3	*1.5	173.4
Local council or baby health centre only	213.1	224.0	108.3	59.9	48.6	21.6	4.7	14.1	694.2
Other single place	*3.5	*	*2.7	*4.2	12.3	*	*0.5	*	24.9
Multiple places	38.2	*2.6	*2.5	*1.5	*7.4	*	*0.4	*0.7	53.6
Don't know	*	*7.9	*	*	*2.5	*1.1	*	*	15.5
No doses received	*7.6	10.3	8.0	*1.9	*3.4	*2.3	*0.6	*1.0	35.1
Total persons	363.4	264.1	146.0	83.1	84.3	31.8	6.6	17.4	996.7
PERCENTAGE OF PERSONS									
Private doctor's surgery only	27.1	6.7	16.5	17.8	12.0	20.3	*4.9	*8.4	17.4
Local council or baby health centre only	58.6	84.8	74.1	72.1	57.6	68.0	71.9	80.6	69.6
Other single place	*1.0	*	*1.9	*5.0	14.6	*	*7.0	*	2.5
Multiple places	10.5	*1.0	*1.7	*1.8	*8.8	*	*5.5	*3.8	5.4
Don't know	*	*3.0	*	*	*2.9	*3.5	*	*	1.6
No doses received	*2.1	3.9	5.5	*2.3	*4.0	*7.1	*9.5	*5.6	3.5
Total persons	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

CHART E SABIN VACCINATION : CENTRE WHERE PERSON AGED 2 TO 5 YEARS WAS IMMUNISED, BY STATE

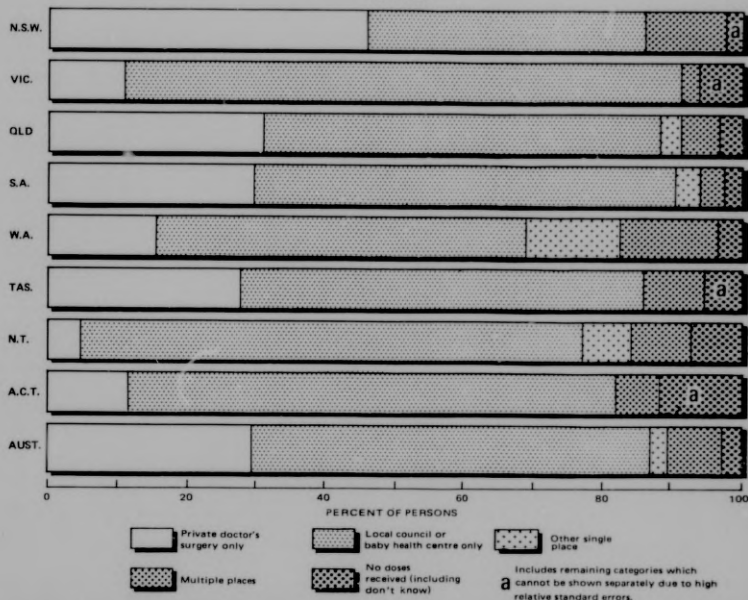


AUSTRALIAN HEALTH SURVEY 1977-78

TABLE 6. TRIPLE ANTIGEN VACCINATION: CENTRE WHERE PERSON AGED 2 TO 5 YEARS WAS IMMUNISED, BY STATE

Centre of immunisation	N.S.W.	Vic.	Qld	S.A.	W.A.	Tas.	N.T.	A.C.T.	Aust.
'000 PERSONS									
Private doctor's surgery only	166.4	28.1	45.4	24.6	12.9	8.7	*0.3	2.0	288.5
Local council or baby health centre only	147.4	213.1	21.1	50.7	45.1	18.6	4.8	12.3	576.2
Other single place	*	*	*4.2	*3.0	11.7	*	*0.5	*	23.5
Multiple places	41.0	*6.6	8.0	*2.7	11.9	2.7	*0.6	*1.1	74.5
Don't know	*	*7.3	*	*	*	*	*0.2	*	11.6
No doses received	*4.2	*7.5	*4.1	*1.7	*1.6	*1.2	*0.3	*1.7	22.3
Total persons	363.4	264.1	146.0	83.1	84.3	31.8	6.6	17.4	996.7
PERCENTAGE OF PERSONS									
Private doctor's surgery only	45.8	10.7	31.1	29.7	15.3	27.4	*4.9	11.6	29.0
Local council or baby health centre only	40.6	80.7	57.6	61.1	53.5	58.7	72.3	70.6	57.8
Other single place	*	*	*2.9	*3.6	13.9	*	*7.3	*	2.4
Multiple places	11.3	*2.5	5.5	*3.2	14.1	8.6	*8.7	*6.3	7.5
Don't know	*	*2.8	*	*	*	*	*2.4	*	1.2
No doses received	*1.2	*2.8	*2.8	*2.0	*1.9	*3.8	*4.3	*9.9	2.2
Total persons	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

CHART F. TRIPLE ANTIGEN VACCINATION: CENTRE WHERE PERSON AGED 2 TO 5 YEARS WAS IMMUNISED, BY STATE



AUSTRALIAN HEALTH SURVEY 1977-78

TABLE 7. SABIN VACCINATION: NUMBER OF DOSES RECEIVED BY PERSONS AGED 2 TO 5 YEARS, BY CENTRE OF IMMUNISATION

Centre of immunisation	Number of doses							Total
	None	One	Two	Three	Four	Five or more	Don't know	
'000 PERSONS								
Private doctor's surgery only	..	*3.6	14.7	66.4	55.4	14.7	18.7	173.4
Local council or baby health centre only	..	16.1	57.9	298.8	211.8	22.2	87.2	694.2
Other single place	..	*2.2	*3.1	13.3	*	*	*4.1	24.9
Multiple places	..	..	*	10.9	21.7	13.7	*5.8	53.6
Don't know	..	*	*	*3.5	*	*	10.8	15.5
No doses received	35.1	..	..	..	..	..	..	35.1
Total persons	35.1	21.9	77.6	393.0	291.9	50.6	126.5	996.7
PERCENTAGE OF PERSONS (a)								
Private doctor's surgery only	..	*2.1	8.5	38.3	32.0	8.5	10.8	100.0
Local council or baby health centre only	..	2.3	8.3	43.0	30.5	3.2	12.6	100.0
Other single place	..	*9.0	*12.3	53.5	*	*	*16.4	100.0
Multiple places	..	..	*	20.4	40.5	25.5	*10.8	100.0
Don't know	..	*	*	*22.8	*	*	69.4	100.0
No doses received	100.0	..	..	..	..	..	..	100.0
Total persons	3.5	2.2	7.8	39.4	29.3	5.1	12.7	100.0

(a) Percentage distribution of number of doses according to centre of immunisation.

TABLE 8. TRIPLE ANTIGEN VACCINATION: NUMBER OF DOSES RECEIVED BY PERSONS AGED 2 TO 5 YEARS, BY CENTRE OF IMMUNISATION

Centre of immunisation	Number of doses							Total
	None	One	Two	Three	Four	Five or more	Don't know	
'000 PERSONS								
Private doctor's surgery only	..	*	7.5	63.7	156.5	44.6	14.6	288.5
Local council or baby health centre only	..	*4.1	12.8	154.1	265.0	54.7	85.5	576.2
Other single place	..	*	*	*7.9	11.2	*	*3.1	23.5
Multiple places	..	..	*	12.6	39.1	19.1	*3.4	74.5
Don't know	..	*	*	*	*	*	*8.3	11.6
No doses received	22.3	..	..	..	..	..	..	22.3
Total persons	22.3	*6.6	20.5	238.6	473.3	120.5	114.9	996.7
PERCENTAGE OF PERSONS (a)								
Private doctor's surgery only	..	*	2.6	22.1	54.2	15.4	5.0	100.0
Local council or baby health centre only	..	*0.7	2.2	26.7	46.0	9.5	14.8	100.0
Other single place	..	*	*	*33.4	47.8	*	*13.1	100.0
Multiple places	..	..	*	16.9	52.4	25.7	*4.6	100.0
Don't know	..	*	*	*	*	*	*71.0	100.0
No doses received	100.0	..	..	..	..	..	..	100.0
Total persons	2.2	*0.7	2.1	23.9	47.5	12.1	11.5	100.0

(a) Percentage distribution of number of doses according to centre of immunisation.

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TABLE 9. SABIN AND TRIPLE ANTIGEN VACCINATIONS: NUMBER OF DOSES OF BOTH VACCINATIONS RECEIVED BY PERSONS AGED 2 TO 5 YEARS

Number of Triple antigen doses	Number of Sabin doses							Total persons
	None	One	Two	Three	Four	Five or more	Don't know	
'000 PERSONS								
None	13.2	*	*	*3.1	*	*	*3.5	22.3
One	*	*3.1	*	*	*	*	*	*6.6
Two	*3.2	*	10.3	*3.6	*	*	*	20.5
Three	*4.6	*5.2	28.3	164.4	23.7	*	12.3	238.6
Four	*4.0	*7.2	24.4	171.0	241.4	*5.9	19.5	473.3
Five or more	*	*	*6.0	31.9	24.1	43.8	11.8	120.5
Don't know	*7.2	*3.4	*7.6	17.5	*	*	77.5	114.9
Total persons	35.1	21.9	77.6	393.0	291.9	50.6	126.5	996.7
PERCENTAGE OF TOTAL PERSONS								
None	1.3	*	*	*0.3	*	*	*0.4	2.2
One	*	*0.3	*	*	*	*	*	*0.7
Two	*0.3	*	1.0	*0.4	*	*	*	2.1
Three	*0.5	*0.5	2.8	16.5	2.4	*	1.2	23.9
Four	*0.4	*0.7	2.4	17.2	24.2	0.6	2.0	47.5
Five or more	*	*	*0.6	3.2	2.4	4.4	1.2	12.1
Don't know	*0.7	*0.3	*0.8	1.8	*	*	7.8	11.5
Total persons	3.5	2.2	7.8	39.4	29.3	5.1	12.7	100.0

TABLE 10. REASON GIVEN FOR PERSONS AGED 2 TO 5 YEARS NOT OBTAINING SABIN AND TRIPLE ANTIGEN VACCINATIONS ('000 PERSONS)

Reason for not obtaining immunisation	Sabin vaccine		Triple antigen vaccine	
	Number	Per cent	Number	Per cent
Don't think it necessary/don't believe in immunisation	*4.2	*11.9	*4.5	*20.1
Don't know about this immunisation	*	*	*	*
Other reason	*8.2	*23.4	*8.1	*36.2
Don't know why	22.4	63.8	9.4	42.2
Total persons	35.1	100.0	22.3	100.0

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TABLE 11. SARIN VACCINATION: NUMBER OF DOSES RECEIVED BY PERSONS AGED 2 TO 5 YEARS, BY YEAR OF ARRIVAL OF MOTHER IN AUSTRALIA ('000 PERSONS)

Number of doses	Year of arrival of mother in Australia							
	Before 1973	1973 to 1977-78	Total overseas born		Mother born in Australia		Total (a)	
			Number	Per cent	Number	Per cent	Number	Per cent
None	13.3	*	15.4	6.1	19.5	2.6	35.1	3.5
One	*	*	*3.7	*1.5	18.2	2.5	21.9	2.2
Two	13.0	*4.3	17.9	7.1	59.5	8.1	77.6	7.8
Three	88.5	*6.0	94.5	37.4	297.3	40.3	393.0	39.4
Four	65.3	*5.5	70.8	28.0	220.8	29.9	291.9	29.3
Five or more	*7.9	*2.5	10.4	4.1	40.2	5.4	50.6	5.1
Don't know	36.7	*3.5	40.2	15.9	82.9	11.2	126.5	12.7
Total persons	226.4	26.4	252.9	100.0	738.3	100.0	996.7	100.0

(a) Includes 5,600 persons for whom country of birth details of mother were not obtained.

TABLE 12. TRIPLE ANTIGEN VACCINATION: NUMBER OF DOSES RECEIVED BY PERSONS AGED 2 TO 5 YEARS, BY YEAR OF ARRIVAL OF MOTHER IN AUSTRALIA ('000 PERSONS)

Number of doses	Year of arrival of mother in Australia							
	Before 1973	1973 to 1977-78	Total overseas born		Mother born in Australia		Total (a)	
			Number	Per cent	Number	Per cent	Number	Per cent
None	*3.4	*2.4	*5.7	*2.3	16.3	2.2	22.3	2.2
One	*	*	*	*	*4.9	*0.7	*6.6	*0.7
Two	*6.5	*	*8.3	*3.3	12.2	1.7	20.5	2.1
Three	55.7	*5.7	61.4	24.3	176.9	24.0	238.6	23.9
Four	99.7	*7.6	107.3	42.4	365.5	49.5	473.3	47.5
Five or more	19.7	*3.3	23.0	9.1	97.3	13.2	120.5	12.1
Don't know	40.5	*5.0	45.5	18.0	65.2	8.8	114.9	11.5
Total persons	226.4	26.4	252.9	100.0	738.3	100.0	996.7	100.0

(a) Includes 5,600 persons for whom country of birth details of mother were not obtained.

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TABLE 13. SABIN VACCINATION: CENTRE WHERE PERSON AGED 2 TO 5 YEARS WAS IMMUNISED, BY YEAR OF ARRIVAL OF MOTHER IN AUSTRALIA ('000 PERSONS)

Centre of immunisation	Year of arrival of mother in Australia		Total overseas born		Mother born in Australia		Total (a)	
	Before 1973	1973 to 1977-78	Number	Per cent	Number	Per cent	Number	Per cent
Private doctor's surgery only	32.1	*6.9	39.1	15.4	133.5	18.1	173.4	17.4
Local council or baby health centre only	167.6	13.3	181.0	71.6	509.5	69.0	694.2	69.6
Other single place	*3.9	*	*4.9	*2.0	19.7	2.7	24.9	2.5
Multiple places	*6.5	*2.7	*9.2	*3.6	44.4	6.0	53.6	5.4
Don't know	*	*3.0	*3.3	*1.3	11.6	1.6	15.5	1.6
No doses received	13.3	*	15.4	6.1	19.5	2.6	35.1	3.5
Total persons	226.4	26.4	252.9	100.0	738.3	100.0	996.7	100.0

(a) Includes 5,600 persons for whom country of birth details of mother were not obtained.

TABLE 14. TRIPLE ANTIGEN VACCINATION: CENTRE WHERE PERSON AGED 2 TO 5 YEARS WAS IMMUNISED, BY YEAR OF ARRIVAL OF MOTHER IN AUSTRALIA ('000 PERSONS)

Centre of immunisation	Year of arrival of mother in Australia		Total overseas born		Mother born in Australia		Total (a)	
	Before 1973	1973 to 1977-78	Number	Per cent	Number	Per cent	Number	Per cent
Private doctor's surgery only	42.3	6.5	48.8	19.3	238.9	32.4	288.5	29.0
Local council or baby health centre only	161.3	13.0	174.3	68.9	398.2	53.9	576.2	57.8
Other single place	*4.3	*	*4.7	*1.9	18.4	2.5	23.5	2.4
Multiple places	10.4	*4.0	14.4	5.7	60.1	8.1	74.5	7.5
Don't know	*	*4.8	*4.9	*1.9	*6.3	*0.9	11.6	1.2
No doses received	*3.4	*2.4	*5.7	*2.3	16.3	2.2	22.3	2.2
Total persons	226.4	26.4	252.9	100.0	738.3	100.0	996.7	100.0

(a) Includes 5,600 persons for whom country of birth details of mother were not obtained.

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TABLE 15. SABIN VACCINATION: NUMBER OF DOSES RECEIVED BY PERSONS AGED 2 TO 5 YEARS, BY EDUCATION LEVEL OF MOTHER ('000 PERSONS)

Number of doses	Mother left school before 15 years of age				Mother left school at 15 years or older					
	No qualifications since leaving school	Obtained qualifications since leaving school	Total		No qualifications since leaving school	Obtained qualifications since leaving school	Total		Total (a)	
			Number	Per cent			Number	Per cent	Number	Per cent
None	13.9	*	14.0	8.5	17.2	*3.2	20.4	2.5	35.1	3.5
One	*4.0	*2.5	*6.5	*3.9	*8.8	*6.6	15.4	1.9	21.9	2.2
Two	*6.8	*3.9	10.8	6.6	40.4	26.2	66.6	8.1	77.6	7.8
Three	48.7	11.0	59.7	36.3	225.7	104.7	330.5	40.2	393.0	39.4
Four	28.4	*6.0	34.4	20.9	167.6	88.9	256.6	31.2	291.9	29.3
Five or more	*3.8	*	*5.0	*3.0	35.1	10.6	45.6	5.6	50.6	5.1
Don't know	31.0	*2.9	33.9	20.6	61.0	25.7	86.6	10.5	126.5	12.7
Total persons	136.6	27.6	164.1	100.0	555.8	265.9	821.7	100.0	996.7	100.0

(a) Includes 10,800 persons whose mother either did not state her level of education, was still at school or had received no education.

TABLE 16. TRIPLE ANTIGEN VACCINATION: NUMBER OF DOSES RECEIVED BY PERSONS AGED 2 TO 5 YEARS, BY EDUCATION LEVEL OF MOTHER ('000 PERSONS)

Number of doses	Mother left school before 15 years of age				Mother left school at 15 years or older					
	No qualifications since leaving school	Obtained qualifications since leaving school	Total		No qualifications since leaving school	Obtained qualifications since leaving school	Total		Total (a)	
			Number	Per cent			Number	Per cent	Number	Per cent
None	*5.7	*	*5.7	*3.5	12.8	*2.9	15.8	1.9	22.3	2.2
One	*	*	*	*	*	*3.1	*4.7	*0.6	*6.6	*0.7
Two	*3.9	*	*4.9	*3.0	11.0	*4.5	15.6	1.9	20.5	2.1
Three	29.4	*6.9	36.4	22.2	139.4	60.8	200.2	24.4	238.6	23.9
Four	54.1	10.5	64.6	39.3	267.8	139.3	407.1	49.5	473.3	47.5
Five or more	14.5	*3.3	17.8	10.9	67.0	35.5	102.4	12.5	120.5	12.1
Don't know	27.2	*5.8	32.9	20.1	56.2	19.7	75.9	9.2	114.9	11.5
Total persons	136.6	27.6	164.1	100.0	555.8	265.9	821.7	100.0	996.7	100.0

(a) Includes 10,800 persons whose mother either did not state her level of education, was still at school or had received no education.

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TABLE 17. SABIN VACCINATION: CENTRE WHERE PERSON AGED 2 TO 5 YEARS WAS IMMUNISED,
BY EDUCATION LEVEL OF MOTHER
(⁰⁰⁰ PERSONS)

Centre of immunisation	Mother left school before 15 years of age				Mother left school at 15 years or older				Total (a)	
	No qual- ifications since leaving school	Obtained qualifica- tions since leaving school	Total		No qual- ifications since leaving school	Obtained qualifica- tions since leaving school	Total			
			Number	Per cent			Number	Per cent	Number	Per cent
Private doctor's surgery only	17.5	*4.3	21.8	13.3	96.5	53.5	150.0	18.3	173.4	17.4
Local council or baby health centre only	93.6	21.0	114.5	69.8	389.8	184.0	573.7	69.8	694.2	69.6
Other single place	*3.7	*	*3.8	*2.3	15.4	*5.2	20.6	2.5	24.9	2.5
Multiple places	*4.3	*	*6.2	*3.8	29.7	16.7	46.3	5.6	53.6	5.4
Don't know	*3.5	*	*3.8	*2.3	*7.3	*3.3	10.6	1.3	15.5	1.6
No doses received	13.9	*	14.0	8.5	17.2	*3.2	20.4	2.5	35.1	3.5
Total persons	136.6	27.6	164.1	100.0	555.8	265.9	821.7	100.0	996.7	100.0

(a) Includes 10,800 persons whose mother either did not state her level of education, was still at school or had received no education.

TABLE 18. TRIPLE ANTIGEN VACCINATION: CENTRE WHERE PERSON AGED 2 TO 5 YEARS WAS IMMUNISED,
BY EDUCATION LEVEL OF MOTHER
(⁰⁰⁰ PERSONS)

Centre of immunisation	Mother left school before 15 years of age				Mother left school at 15 years or older				Total (a)	
	No qual- ifications since leaving school	Obtained qualifica- tions since leaving school	Total		No qual- ifications since leaving school	Obtained qualifica- tions since leaving school	Total			
			Number	Per cent			Number	Per cent	Number	Per cent
Private doctor's surgery only	32.9	*6.2	39.1	23.8	152.4	95.5	247.9	30.2	288.5	29.0
Local council or baby health centre only	86.8	17.8	104.6	63.7	323.3	141.9	465.2	56.6	576.2	57.8
Other single place	*3.2	*	*3.2	*2.0	15.2	*4.6	19.8	2.4	23.5	2.4
Multiple places	*5.8	*3.2	9.0	5.5	45.6	18.8	64.4	7.8	74.5	7.5
Don't know	*2.3	*	*2.6	*1.6	*6.4	*2.2	*8.6	*1.0	11.6	1.2
No doses received	*5.7	*	*5.7	*3.5	12.8	*2.9	15.8	1.9	22.3	2.2
Total persons	136.6	27.6	164.1	100.0	555.8	265.9	821.7	100.0	996.7	100.0

(a) Includes 10,800 persons whose mother either did not state her level of education, was still at school or had received no education.

TECHNICAL NOTE

Estimation procedure

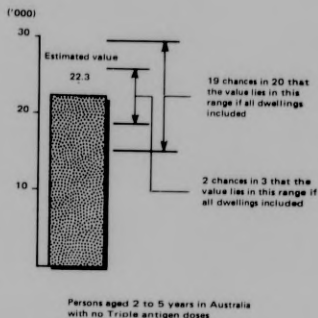
Estimates derived from the survey are obtained by using a complex ratio estimation procedure, which ensures that the survey estimates conform to an independently estimated distribution of the population by age and sex, rather than to the age and sex distribution within the sample itself.

Reliability of the estimates

2. Since the estimates in this publication are based on information obtained from occupants of a sample of dwellings they are subject to sampling variability; that is, they may differ from the figures that would have been produced if all dwellings had been included in the survey. One measure of the likely difference is given by the *standard error*, which indicates the extent to which an estimate might have varied by chance because only a sample of dwellings was included. There are about two chances in three that a sample estimate will differ by less than one standard error from the figure that would have been obtained if all dwellings had been included, and about nineteen chances in twenty that the difference will be less than two standard errors. Another measure of the likely difference is the *relative standard error*, which is obtained by expressing the standard error as a percentage of the estimate.

Space does not allow for the separate indication of the standard error of all estimates in this publication. A table of standard errors for general application is given below. These figures will not give a precise measure of the standard error of a particular estimate but they will provide an indication of its magnitude. An example of the calculation and use of standard errors is as follows: Table 1 shows that the estimated number of persons aged 2 to 5 years in Australia with no Triple antigen dose is 22,300. From the table below it will be seen that the estimate has a standard error of about 3,600

and therefore there are about two chances in three that the value that would have been produced if all dwellings had been included in the survey will fall within the range 18,700 to 25,900 and about nineteen chances in twenty that the value will fall within the range 15,100 to 29,500. This example is illustrated in the following diagram.



The size of the standard error in relation to the estimate indicates that the actual value could be greater or less (within standard error ranges) than the published figure.

TABLE A. STANDARD ERRORS OF ESTIMATES - PERSONS

Size of estimate (persons)								Australia	
	N. S. W.	Vic.	Qld.	S. A.	W. A.	Tax.	N. T.	A. C. T.	Relative standard error (per cent)
150							70		
200							80		
250							90		
300							100		
350							110		
400							120		
450							130		
500							140	240	
600							150	260	
800						300	170	300	
1,000						350	200	330	
1,500						470	240	410	
2,000						540	280		
2,500						600	320	480	
3,000		1,200	920	640	740	650	350	1,200	46.9
4,000	1,800	1,300	1,100	860	850	750	410	1,300	42.8
5,000	2,000	1,500	1,300	1,100	1,200	840	460	1,500	37.2
6,000	2,200	1,700	1,400	1,300	1,400	910	500	1,700	33.3
8,000	2,500	1,900	1,600	1,400	1,400	1,000	580	2,000	30.4
10,000	2,800	2,200	1,800	1,700	1,700	1,200	660	2,400	26.4
12,000	3,000	2,500	2,100	1,900	1,900	1,300	740	2,800	23.7
14,000	3,200	2,800	2,400	2,000	2,000	1,400	820	3,200	16.8
16,000	3,400	3,100	2,700	2,200	2,200	1,500	900	3,600	13.8
18,000	3,600	3,400	3,000	2,400	2,400	1,600	980	4,000	10.7
20,000	3,800	3,700	3,300	2,600	2,600	1,700	1,060	4,400	7.6
25,000	4,500	4,500	4,000	3,000	3,000	2,000	1,200	5,000	5.4
30,000	5,000	5,000	4,600	3,400	3,400	2,200	1,300	5,400	4.4
40,000	6,000	6,000	5,500	4,200	4,200	2,600	1,500	6,400	3.4
50,000	7,000	7,000	6,500	5,000	5,000	3,000	1,600	7,400	2.4
60,000	8,000	8,000	7,500	5,800	5,800	3,400	1,700	8,400	1.7
70,000	9,000	9,000	8,500	6,600	6,600	3,800	1,800	9,400	1.1
80,000	10,000	10,000	9,500	7,400	7,400	4,200	1,900	10,400	
90,000	11,000	11,000	10,500	8,200	8,200	4,600	2,000	11,400	
100,000	12,000	12,000	11,500	9,000	9,000	5,000	2,100	12,400	
120,000	13,600	13,600	13,100	10,600	10,600	5,800	2,300	14,400	
140,000	15,200	15,200	14,700	12,200	12,200	6,600	2,500	16,400	
160,000	16,800	16,800	16,300	13,800	13,800	7,400	2,700	18,400	
180,000	18,400	18,400	17,900	15,400	15,400	8,200	2,900	20,400	
200,000	20,000	20,000	19,500	17,000	17,000	9,000	3,100	22,400	
250,000	23,800	23,800	23,300	20,600	20,600	10,600	3,500	26,400	
300,000	27,600	27,600	27,100	24,000	24,000	12,200	3,900	30,400	
350,000	31,400	31,400	30,900	27,600	27,600	13,800	4,300	34,400	
400,000	35,200	35,200	34,700	31,400	31,400	15,400	4,700	38,400	
450,000	39,000	39,000	38,500	35,200	35,200	17,000	5,100	42,400	
500,000	42,800	42,800	42,300	39,000	39,000	18,600	5,500	46,400	

Brackets around standard errors indicate a relative standard error exceeding 25%.

4. As the standard errors in the table show, the smaller the estimate the higher is the relative standard error. Very small estimates would thus be subject to such high standard errors (relative to the size of the estimate) as to detract seriously from their value for most reasonable uses. In this publication, only estimates with relative standard errors less than 25% are considered sufficiently reliable for most purposes. Estimates with relative standard errors of 25% or more are indicated by an *. Estimates with relative standard errors between 25% and 50% have been included but care should be exercised in using them because they are subject to such high errors. Estimates with relative standard errors greater than 50% have not been shown and although figures for these components can in some cases be derived by subtraction, they should not be regarded as reliable.

5. The reliability of an estimated percentage or rate, computed by using sample data for both numerator and denominator, depends upon both the size of the numerator and the size of the denominator. However, the relative standard error of the estimated percentage will generally be lower than the relative standard error of the estimate of the numerator.

6. Approximate standard errors on rates or percentages may be derived by first obtaining the relative standard error of the number of persons corresponding to the numerator of this rate or percentage and then applying this figure to the estimated rate or percentage. The relative standard errors of the numerator can be obtained from Table A. An example of this calculation is as follows: Table 2 shows that the proportion of persons aged 2 to 5 years in Tasmania with two Sabin doses is 56.8 per cent and that the numerator of this percentage is 18,100. By interpolation from Table A the standard error of the numerator is approximately 1,520. This is a relative standard error of 8.4 per cent. The standard error on this percentage is approximated as:

Percentage x Relative standard error

$$\begin{aligned} &= 56.8 \times \frac{8.4}{100.0} \\ &= 4.8 \end{aligned}$$

Therefore there are 2 chances in 3 that the percentage that would have been obtained if all dwellings had been included in the survey is in the range 52.0 to 61.6 per cent and 19 chances in 20 that it is in the range 47.2 to 66.4 per cent.

7. Published figures may also be used to estimate the difference between two survey estimates (estimates of numbers, rates or percentages). Such a figure is itself

an estimate and is therefore subject to sampling error. The sampling error of the difference between two survey estimates depends on the standard errors of the original estimates and on the relationship (correlation) between the two original estimates. An approximate standard error of the difference between two estimates (x-y) may be calculated by the following formula:

$$\begin{aligned} &\text{Standard error (x-y)} \\ &= \sqrt{\{\text{Standard error (x)}\}^2 + \{\text{Standard error (y)}\}^2} \end{aligned}$$

While this formula will only be exact for differences between separate and uncorrelated (unrelated) characteristics or sub-populations, it is expected to provide a good approximation for all differences likely to be of interest in this publication.

8. An example of the use of the above formula is as follows. The difference between the estimates of the number of persons who received no doses of Sabin vaccine and those who received no doses of Triple antigen (from Table 1) is

$$35,100 - 22,300 = 12,800$$

9. The standard error of this estimate is as follows. From Table A the standard errors of each of the two original estimates can be approximated as 4,400 and 3,600 respectively. Therefore the standard error on the difference (12,800) is given by:

$$\begin{aligned} &\text{Standard error (35,100 - 22,300)} \\ &= \sqrt{(4,400)^2 + (3,600)^2} \\ &= 5,700 \text{ (rounded to nearest 100)} \end{aligned}$$

Thus there are about 2 chances in 3 that the difference that would have been obtained, if all dwellings had been included in the survey is within the range 7,100 to 18,500 and about 19 chances in 20 that this difference is between 1,400 and 24,200.

10. The imprecision due to sampling variability, which is measured by the standard error, should not be confused with inaccuracies that may occur because of imperfections in reporting by interviewers and respondents. Inaccuracies of this kind are referred to as the *non-sampling error*, and they may occur in any enumeration, whether it be a full count or only a sample. Every effort is made to reduce the non-sampling error to a minimum by careful design of questionnaires, intensive training and supervision of interviewers and efficient operating procedures.