

Vulnerable Persons Food Safety Scheme

Phase II evaluation

Onsite study of practices observed at first audit

October 2010

About this document

This document has been prepared to report the on-site findings of the NSW Food Authority's Evaluation of the Vulnerable Persons Food Safety Scheme (phase II) that was conducted in 2009.

It is one of three reports and should be read in conjunction with the *Benchmarking the microbiological quality of food served by Vulnerable Persons businesses* (2010)¹ report and the *Phase II evaluation – summary report* (2010)².

If you have any questions about this document, please contact the NSW Food Authority Consumer and Industry Helpline on 1 300 552 406 or contact@foodauthority.nsw.gov.au.

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Executive summary

The first mandatory audits for vulnerable persons businesses licensed under the NSW Vulnerable Persons Food Safety Scheme (the Scheme) took place in March 2009. At that time the NSW Food Authority (the Authority) undertook an onsite benchmark evaluation of over 100 vulnerable persons businesses covered by the Scheme.

The evaluation focused on gathering food safety data from vulnerable persons businesses at that first scheduled audit.

The on-site performance data collected for this study provides a benchmark against which changes can be measured over time.

Key findings were:

- just over one in five (23%) vulnerable persons business failed their first mandatory audit
- the average food safety performance score was 80%
- businesses achieved the highest scores on audit elements: hygiene/sanitation and construction/maintenance
- the three most frequently identified Corrective Action Request (CAR) issues were for food safety programs, pre-requisite programs and processing controls
- higher pass rates for delivered meal organisations (DMOs)
- medium and large-sized businesses perform well at first audit
- Sydney/metropolitan performed better at first audit compared with regional/rural businesses
- after failing, 93% of businesses pass their follow-up audit

Vulnerable persons businesses have demonstrated an ability to improve especially after experiencing one regulatory audit. These findings highlight areas for improvement by businesses and particular focus during audit by the Authority's food safety auditors.

Results of this evaluation have also been used to contribute to recent changes made to the *Vulnerable Persons Food Safety Scheme Manual*³.

1. Assessing food safety performance of vulnerable persons businesses

1.1 Two main objectives

The objectives of the on-site component of the Phase II evaluation were to:

1. collect benchmark food safety performance data from vulnerable persons businesses at first mandatory audit such that the impact of the Vulnerable Persons Food Safety Scheme can be measured over time, and
2. assess the effectiveness of the Authority's processes in implementing the Scheme

2. How the study was conducted (tools, businesses and sampling period)

2.1 A standard tool was used to assess vulnerable persons businesses

Over a seven month sampling period (1 May 2009 to 30 November 2009), the Authority's food safety auditors recorded first audit findings against a standardised assessment tool.

The assessment tool included criteria for assessing food safety performance and industry specific processes in eight standard areas:

1. food safety program
2. construction and maintenance
3. hygiene and sanitation
4. processing controls
5. product identification, traceability and recall
6. pre-requisite programs
7. corrective action
8. analytical and testing

2.2 Food safety performance for over 100 businesses was benchmarked

Onsite food safety performance data was collected from 145 licensed vulnerable persons businesses undergoing their first mandatory audit. This represents approximately 12% of the total number of vulnerable persons businesses licensed with the Authority at the time of the evaluation (n=1228).

The overall food safety performance score was calculated as an average and is comprised of the scores earned by all individual businesses'. For each business, food safety performance scores were calculated as a percentage of correct answers over the total number of questions answered. The overall food safety performance score is made up of 176 questions covering all eight audit elements (Appendix 1).

The Authority used SurveyMonkey™, a web-based survey database program, to manage the data. Before final scores were calculated, missing observational data arising from incomplete assessment tools was managed in the following way.

For each question, audit element and business, assessment tool completion rates were determined. Where the completion rate was less than 50% for a question, audit element or a business the information was deleted from the dataset. Consequently, for each audit element there are a different number of businesses included in the average score.

The Authority's routine audit schedule determined which businesses received a first audit during the sampling period. Samples were then selected at random from both Sydney/metropolitan and a selection of NSW rural/regional areas. Sample selection was based on the auditing schedule until the sample size reached 150, noting that samples selected from each area were not proportionate to the total number of licence holders in that region.

2.3 Audit and compliance data collected

During the sampling period (1 May 2009 to 30 November 2009) a total of 478 mandatory first audits were completed. Food safety performance was benchmarked using the standardised assessment tools for 118 of the total 478 businesses (25%) receiving first audits during this period.

As a routine process, the Authority records compliance information for all audits and inspections conducted in an electronic database. Information such as audit rating and Corrective Action Request (CAR) issues are stored in this database.

For each business, its audit rating is based on the number of defect points earned during an audit (A — E). D (48-63 points) and E (64 and above points) audit outcomes are considered unacceptable. The number of points allocated will depend on whether the defects are rated 'critical', 'major' or 'minor' by the Authority's food safety auditors. Defects are then documented as issues and their compliance is managed as part of a Corrective Action Request.

In the evaluation, 'audit pass rate' (number of businesses that passed divided by the total number of audits completed) and the 'CAR issues rate per audit' (average number of CAR issues reported per audit) have been extracted from the Authority's electronic database.

This audit data has been used in conjunction with the food safety performance data collected from the assessment tools to illustrate the overall food safety performance of vulnerable persons businesses at first mandatory audit.

3. Food safety performance was scored at 80%

3.1 Over one in five (23%) businesses failed their first mandatory audit

For all first audits completed during the sampling period (n=478) the audit failure rate was 23%. Almost four in ten (39%) businesses scored an A rating, while three in ten (33%) scored a B rating. See Table 1 below.

Table 1. Audit scores for first audits

	A	B	C	Total passed	D	E	Total failed
Number of businesses (n=478)	184	159	27	370	1	107	108
Percentage of businesses	39%	33%	6%	77%	0.2%	22%	23%

3.2 Businesses perform best at food safety hygiene and sanitation

Overall, the average food safety performance score calculated from the standardised assessment tools was 80% (n=118, 95% CL 50–84%). Vulnerable persons businesses performed best for hygiene and sanitation (94%, n=139, 95% CL 70–98%) and construction and maintenance (86%, n=136, 95% CL 29-90%) audit elements. See Table 2 below.

Performance scores for product identification, traceability and recall were only calculated for delivered meal organisations (DMOs)ⁱ that process food for delivery to another facility. Businesses that process or serve food within a facility are not required to comply with the same traceability and recall requirements. See Appendix 1 for a complete scorecard.

Table 2. Food safety performance scores for each audit element

Audit element	Food safety performance score	Number of businesses surveyed
Hygiene and sanitation	94%	139
Construction and maintenance	86%	136
Processing controls	85%	105
Pre-requisite programs	80%	144
Food safety program	69%	145
Corrective action	62%	119
Product identification, traceability and recall	62%	7
Analytical and testing ⁱⁱ	n/a	0

ⁱ Includes 2 central production units

ⁱⁱ Food safety performance scores were not calculated for the audit element analytical and testing, as it is not a mandatory requirement that vulnerable persons businesses comply with these requirements.

3.3 The Authority's food safety auditors identified key areas for improvement

The assessment tool included specific questions assessing food safety compliance. Key findings have been presented below that identify areas requiring attention:

*Product identification, traceability and recall*ⁱⁱⁱ

- Over half (57%) of the businesses surveyed (n=7) did not identify allergens during purchasing and storage
- Over eighty percent (86%) of businesses did not record batch codes of ingredients and raw materials on manufacturing sheets (n=7)

Corrective action

- One quarter (26%) of the businesses surveyed (n=113) did not record corrective actions for identified non-conformances

Food safety program

- 32% of businesses surveyed (n=144) had not systematically identified all potential hazards
- 26% of businesses had not implemented control measures for each of the identified hazards (n=142)
- Only two-thirds (66%) of businesses had stated critical limits for identified hazards that met the requirements of the *Food Standards Code* or an appropriate Australian Standard (n=143)
- 30% of surveyed businesses did not monitor their controls points as per stated generic manual (n=139)
- Almost half of the businesses surveyed did not have a verification schedule for their food safety program (n=128)

Processing controls

- Only two-thirds of businesses surveyed maintain monitoring records to verify cooling temperatures are reached (n=104)
- 69% of businesses surveyed (n=124) sanitised fresh cut fruit and vegetables in 100ppm food grade chlorine for 5 minutes^{iv}
- 45% of businesses surveyed (n=94), that served high risk foods did not have adequate *Listeria* controls in place

ⁱⁱⁱ Only delivered meal organisations were surveyed in this audit element

^{iv} More information on cleaning and sanitising fresh produce can be found in the *Vulnerable Persons Food Safety Scheme Manual* Section 5: Technical Information

3.4 Over a third of the CAR issues were raised for food safety program non-compliance

Audit and compliance data was collected for all businesses (n=478) that received a first audit during the sampling period 1 May 2009 to 30 November 2009. The number of CAR issues identified for each audit element has been summarised in Table 3.

The three most frequently identified CAR issues were for:

1. food safety program
2. pre-requisite programs
3. processing controls

Table 3. Analysis of the number of CAR issues for each audit element

Audit element	Number of CAR issues	Percentage (%) of CAR issues
Food safety program	1239	35%
Pre-requisite programs	771	22%
Processing controls	628	18%
Construction and maintenance	374	11%
Hygiene and sanitation	270	8%
Product id, traceability and recall	110	3%
Corrective action	95	3%
Analytical and testing ^v	15	0.4%
Total	3502	100%

Of the three most frequently identified CAR issues raised, the following areas were identified as of concern:

Food safety programs

- inadequate identification of potential hazards in foods (eg high-risk foods, pureed foods)
- food safety programs not reflecting current practices
- critical limits for identified hazards not meeting the requirements of the Food Standards Code or appropriate Australian Standard
- lack of documentation monitoring critical limits
- inadequate review of the food safety program manual

Pre-requisite programs

- non-routine calibration of equipment and calibration records not being maintained (e.g. for freezers and temperature probes)
- training is not always being undertaken and/or records are not available
- no evidence of having an approved supplier list
- inadequate pest control program (no activity report or bait station map available)

^v It is not mandatory for businesses to comply with analytical and testing requirements, however when included in a businesses food safety program, this element is audited.

Processing controls

- insufficient sanitation of fresh-cut fruit and vegetables
- inadequate temperature controls
- prolonged storage of potentially hazardous foods (eg sliced RTE meats)

Of the total number of Critical CARs issued during the sampling period (n=146), six in ten (64%) were issued for non-compliance to food safety program requirements. See Appendix 2.

3.5 Higher pass rates for Delivered Meal Organisations

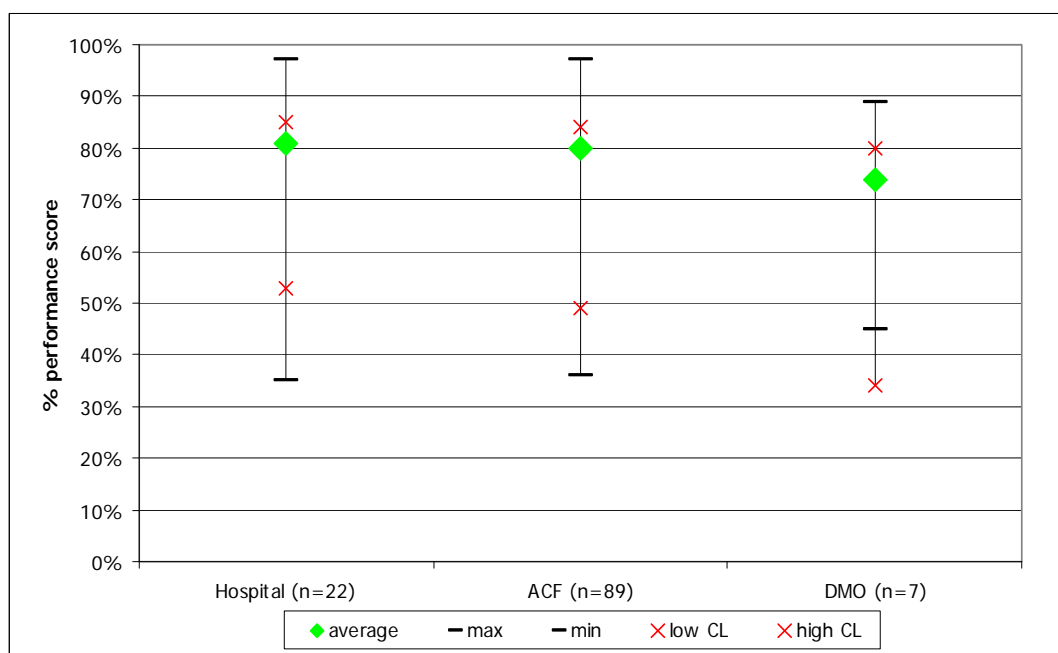
Delivered Meal Organisations (DMOs) scored the highest audit pass rate 86% (n=50^{vi}) compared with hospitals (80%, n=61^{vii}) and aged care facilities (76%, n=367^{viii}). See Table 4. The number of DMOs included in this figure represents over half of the total number of DMOs licensed by the Authority at that time (Appendix 3). As the number and types of CAR issues awarded contributes to the overall audit score, there is a clear relationship between audit pass rate and the number of CAR issues identified as aged care facilities had the highest CAR issues rate of all facility types (7.4) followed by hospitals (7.2) and DMOs (6.7).

Table 4. Overall performance scorecard by facility type^{ix}

	Audit pass rate (n=478)	CAR issues rate (n=478)
Hospital	80%	7.2
Aged care facility	76%	7.4
DMO	86%	6.7

The evaluation showed limited variation between the performance scores (as calculated from the assessment tool) for each of the facility types (see Figure 1 below). Hospitals scored the highest food safety performance score (81%, n=22, 95% CL 53–85%) followed by aged care facilities (80%, n=89, 95% CL 49–84%) and DMOs (74%, n=7^x, 95% CL 34–80%). However, direct comparisons are somewhat constrained due to the small DMO sample size (n=7) which represents only 8% of the total number of DMO businesses licensed at the time of the evaluation.

Figure 1. Food safety performance scorecard for vulnerable persons businesses by facility type



^{vi} Representing 54% of the total number of DMOs licensed at the time of the evaluation.

^{vii} Representing 23% of the total number of hospitals licensed at the time of the evaluation.

^{viii} Representing 42% of the total number of aged care facilities licensed at the time of the evaluation.

^{ix} Facility types have been grouped into the three categories based on the types of food processing conducted and the likely exposure to the food produced (based on the average length of stay of patients or residents).

^x This category includes two Central Production Units (CPUs)

3.6 Medium and large-sized businesses perform well at first audit

Businesses licensed with the Authority are classified by size based on the number of full time equivalent (FTE) staff members employed by the business^{xi}. Food safety performance scores, audit pass rate and CAR issues rate per audit have been calculated for each business size category (Table 5).

Medium and large-sized businesses demonstrated the highest performance score (86%, n=15, 95% CL 66–91%) when assessed against very small (79%, n=38, 95% CL 50–83%) and small (78%, n=65, 95% CL 45–82%) and very small businesses. Of particular interest is the low variability observed amongst medium/large sized facilities indicating that overall, businesses in this category achieved high food safety performance scores. See Figure 2.

Likewise, as listed in Table 5, more medium and large-sized businesses (87%, n=45) passed their first audit, compared to small (77%, n=213) and very small (75%, n=201) businesses.

Medium and large-sized businesses scored the highest CAR issues rate per audit (8.2, n=45), followed by small (8.1, n=213) and very small businesses (6.6, n=201). The lower CAR issues rates achieved very small facilities simply reflects the simplicity of these operations compared with processing arrangements at larger facilities.

Figure 2. Food safety performance scorecard for vulnerable persons businesses by size

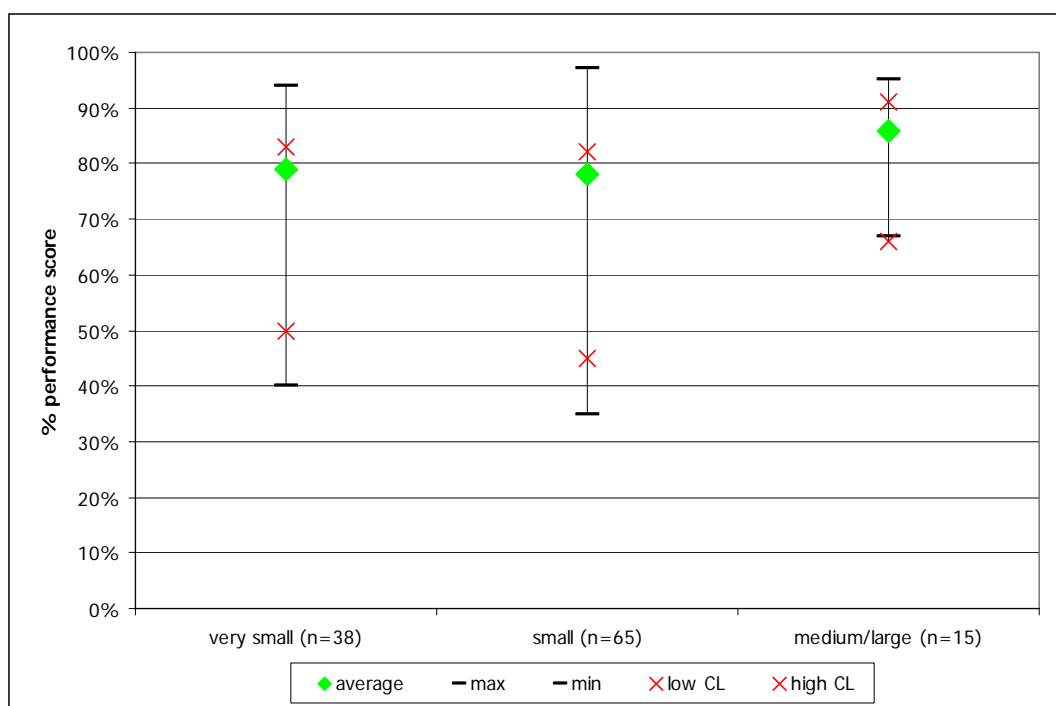


Table 5. Overall performance scorecard by business size

Business size	Audit pass rate (n=459)	CAR issues rate (n=459)
Very small	75%	6.6
Small	77%	8.1
Medium/large	87%	8.2

^{xi} Very small businesses (0-3 FTE staff), small (4-10 FTE), and medium/large (greater than 11 FTE staff)

3.7 Sydney/metropolitan performed better at first audit compared with regional/rural businesses

The average food safety performance score for businesses located in the Sydney/metropolitan region was 86% (n=48, 95% CL 60–90%) compared to regional and rural areas that scored 75% (n=70, 95% CL 45–79%). See Table 6 below. Of all 16 regional groups, Northern Sydney (n=16, 95% CL 70–93%) scored the highest average performance score of 89%. See Appendix 4.

When assessing audit and compliance data (n=478), a higher proportion of businesses located in the Sydney metropolitan region (81%, n=196) passed their first audit when compared to those businesses that are located in regional and rural areas (75%, n=282).

Table 6. Distribution of samples by region in the evaluation study

Location	Food safety performance	% of businesses passed first audit
Sydney/Metropolitan	86% (n=48, 95% CL 60-90%)	81% (n=196)
Rural/Regional	75% (n=70, 95% CL 45-79%)	75% (n=282)

When further analysing the data, there was a greater number of very small businesses in rural/regional areas when compared to Sydney/metropolitan areas. Specifically, when investigating audit pass rates, almost half (47%) of the rural/regional businesses surveyed were classed as 'very small' in size compared with only one-third (34%) of the Sydney/metropolitan businesses.

3.8 Almost all failed businesses need only one follow up audit, two-thirds earned an 'A' rating

In addition to the 478 first audits that were conducted during the seven month evaluation period in 2009, 72 follow-up audits completed. Of these, 93% passed with almost two-thirds scoring an A. Results are listed in Table 8.

Table 7. Audit scores of follow-up audits

	A	B	C	Total passed	D	E	Total failed
Number of businesses (n=72)	45	18	4	67	0	5	5
Percentage (%) of businesses	63%	25%	6%	93%	0%	7%	7%

4.0 Vulnerable persons businesses are performing well but there is room for improvement

The evaluation findings have highlighted specific areas of food safety performance where businesses performed well and other areas where improvements are required.

Some of the key areas identified where improvements can be made include compliance to:

- food safety programs
- pre-requisite programs, and
- processing controls

The data collected has been used to establish a food safety benchmark for vulnerable persons businesses at first mandatory audits and has assessed the Authority's implementation process.

Findings have also been used to inform a recent review of the *Vulnerable Persons Food Safety Scheme Manual*³.

Appendix 1. Food safety performance scorecard

Audit element	Total number of licence holders	n of licence holders assessed	% of licence holders assessed	Average performance score	Max	Min	+CL	-CL	n of questions in tool
Food safety program	1228	145	12%	69%	100%	0%	73%	15%	22
Construction and maintenance		136	11%	86%	100%	0%	90%	29%	6
Hygiene and sanitation		139	11%	94%	100%	33%	98%	70%	9
Processing controls		105	9%	85%	99%	48%	89%	59%	82
Product identification, traceability and recall		7	0.6%	62%	92%	50%	68%	28%	13
Pre-requisite programs		144	12%	80%	100%	6%	84%	40%	37
Corrective action		119	10%	62%	100%	0%	66%	-1%	7
Overall food safety performance score		118	10%	80%	97%	35%	84%	50%	176

Appendix 2. Total number of CARs issued by audit element and type

Audit element	Minor CARs	Major CARs	Critical CARs	Total CARs	% of CARs
Food safety program	130	237	93	460	25%
Construction and maintenance	215	35	1	251	14%
Hygiene and sanitation	152	37	0	189	10%
Processing controls	100	200	47	347	19%
Product identification, traceability and recall	66	23	0	89	5%
Pre-requisite programs	251	124	4	379	21%
Corrective action	53	30	0	83	5%
Analytical and testing	12	2	1	15	1%
Total	979	688	146	1813	100%

Appendix 3. Total performance scorecard

Food Safety Performance									Audit and compliance data								
Category	total no of licence holders	n	% of licence holders assessed	Average performance score	Max	Min	+CL	- CL	n	% of licence holders assessed	Audit score						
											A	B	C	% passed	D	E	% failed
Hospital	268	22	8%	81%	97%	35%	85%	53%	61	23%	20	24	5	80%	0	12	20%
ACF	868	89	10%	80%	97%	36%	84%	49%	367	42%	142	118	18	76%	1	88	24%
DMO	92	7	8%	74%	89%	45%	80%	34%	50	54%	22	17	4	86%	0	7	14%
Very small	595	38	6%	79%	94%	40%	83%	50%	201 ^{xii}	35%	87	53	11	75%	0	50	25%
Small	513	65	13%	78%	97%	35%	82%	45%	213	42%	76	75	13	77%	1	48	23%
Medium/large	120	15	13%	86%	95%	67%	91%	66%	45	38%	9	27	3	87%	0	6	13%
Total	1228	118	10%	80%	97%	35%	84%	50%	1228	39%	184	159	27	77%	1	107	23%

^{xii} Out of the total 478 businesses included there were 19 businesses that business size is unknown

Appendix 4. Overall food safety performance scores by region

Regional area	Evaluation data (n=118)								Audit and compliance data (n=478)		
	n	% of licence holders assessed	% of samples	performance score	Max	Min	+CL	- CL	n	% of licence holders assessed	% of businesses that passed
Central Sydney	7	8%	6%	84%	95%	69%	90%	59%	34	37%	82%
Northern Sydney	16	11%	14%	89%	97%	67%	93%	70%	46	32%	83%
South Eastern Sydney	4	4%	3%	88%	90%	87%	96%	84%	36	33%	83%
South Western Sydney	10	12%	8%	85%	96%	48%	90%	52%	31	37%	74%
Western Sydney	11	10%	9%	85%	96%	36%	90%	44%	49	43%	80%
Total Sydney^{xiii}	48	9%	41%	86%	97%	36%	90%	60%	196	36%	81%
Central West	4	6%	3%	74%	87%	60%	82%	43%	21	33%	62%
Far West	0	0%	0%	n/a	n/a	n/a	n/a	n/a	6	75%	83%
Hunter	29	15%	25%	72%	94%	40%	76%	35%	97	51%	74%
Illawarra	6	8%	5%	82%	89%	69%	88%	64%	40	56%	88%
Mid North Coast	2	4%	2%	79%	79%	78%	98%	76%	21	40%	81%
Murray	5	12%	4%	70%	79%	61%	77%	49%	15	36%	73%
Murrumbidgee	9	21%	8%	76%	93%	55%	81%	47%	20	48%	85%
North West	1	3%	1%	70%	70%	70%	n/a	70%	7	19%	71%
Northern Region	3	6%	3%	87%	97%	79%	97%	58%	13	27%	54%
Northern Rivers	1	1%	1%	53%	53%	53%	n/a	53%	16	23%	69%
South East	10	19%	8%	79%	90%	35%	84%	43%	26	48%	73%
Total Rural and Regional^{xiv}	70	10%	59%	75%	97%	35%	79%	45%	282	41%	75%
Total	118	10%	100%	80%	97%	35%	84%	50%	478	39%	77%

^{xiii} Total Sydney= Central Sydney, Northern Sydney, South Eastern Sydney, South Western Sydney, and Western Sydney

^{xiv} Total Rural and Regional= Central West, Far West, Hunter, Illawarra, Mid North Coast, Murray, Murrumbidgee, North West, Northern Region, Northern Rivers, and South East

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