2007 National Food Handling Survey
Final Report

Food Standards Australia New Zealand

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Acknowledgement

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2007 National Food Handling Survey
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prepared for

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1.   Executive Summary

This report presents the findings from the 2007 National Food Handling Survey commissioned by Food Standards Australia New Zealand (FSANZ). The survey was conducted in two parts: a telephone survey with managers or supervisors of food businesses to measure safe food handling knowledge (February to March 2007) and an on-site Observational Survey of food businesses to measure actual food handling practices (June to August 2007).

1.1   Background

In August 2000, the Australia New Zealand Food Standards Council agreed to the inclusion of three Food Safety Standards in the *Australia New Zealand Food Standards Code* (Standards 3.1.1, 3.2.2 and 3.2.3). The three Standards, developed by FSANZ, contain requirements relating to food safety practices, premises and equipment. The purpose of these new Standards was to allow consistent food safety regulations to be implemented across all States and Territories.

State and Territory Governments introduced the new Food Safety Standards into their legislation between 2001 and 2003. The Standards included requirements for food businesses in relation to:

> ➢ the skills and knowledge of food handlers and their supervisors;
> ➢ specific food handling controls for certain steps in the production chain;
> ➢ having a system to recall unsafe food;
> ➢ the health and hygiene of food handlers;
> ➢ the cleaning, sanitation and maintenance of equipment and the premises; and
> ➢ the suitability of the food premises and equipment.

In addition to implementing the three compulsory Food Safety Standards, Victoria had introduced additional requirements for all food businesses (except low risk businesses) to have a documented food safety program.

At the time of introduction of the Food Safety Standards, it was decided that FSANZ would evaluate their impact. It was acknowledged that it was not possible to measure the effect of implementing the Standards on the end objective of setting those Standards – the protection of public health and safety. Therefore, evaluation of the Standards was conducted under the assumption that a measure of any improvement in the food safety knowledge of food businesses and the food handling practices carried out by food businesses would consequently impact on the incidence of food poisoning.

In 2001 a benchmark survey was commissioned to measure the safe food handling knowledge and practices prior to full introduction of the Standards.

The follow-up survey was conducted in 2007 (and reported herein) and measures the impact of the Standards on food handling practices and knowledge among food businesses.

FSANZ commissioned Campbell Research & Consulting (CR&C) to independently conduct each survey and analyse the results.

1.2   Methodology

Both the 2001 National Food Handling Benchmark Survey and the 2007 National Food Handling Survey were undertaken in two distinct components:

> ➤ a Computer Assisted Telephone Interview (CATI) of managers or supervisors of food businesses (1,200 interviews in 2001 and 2,300 in 2007) to measure safe food handling **knowledge**; and

> ➤ an observational on-site survey of food businesses conducted by Environmental Health Officers (EHOs) (483 interviews in 2001 and 916 in 2007) to measure actual food handling **practices**.

The samples for the two surveys were each drawn using a random stratified approach to achieve a representative selection of food businesses and locations across Australia.

Questionnaires for each survey were designed to seek information on the knowledge and practices on key requirements of the Food Safety Standards such as temperature control, preventing contamination, cleaning and sanitation and personal hygiene and health of food handlers. In addition, data were sought on common sources of information and training on safe food handling practices, perceived knowledge about the Standards, as well as the proportion of businesses with written food recall plans and food safety programs.

Additionally, in both the Telephone and Observational Surveys there was a deliberate over sampling of bakeries and sushi makers. This was done to get a better understanding of the frequency that these businesses may engage in certain practices that have been associated with some recent food borne illness outbreaks.

1.3   Overall findings

Comparison of the Telephone and Observational Survey results between 2001 and 2007 demonstrates increased knowledge of safe food handling and improved food handling practices since the implementation of the Food Safety Standards.

Compared with 2001:

> ➢ more businesses knew the correct storage temperature for chilled food;
> ➢ more businesses knew the correct temperature for holding hot food;
> ➢ more businesses knew the correct temperature and time for safely cooling food;
> ➢ more businesses knew when chemical sanitisers should be used.

Compared with 2001, businesses improved their food handling practices as follows:

> ➢ more businesses had temperature probes that were more frequently used;
> ➢ more businesses that had potentially hazardous food checked that the food was received at a safe temperature;
> ➢ more businesses had improved their storage practices for chilled food;
> ➢ more businesses that cooked food monitored that it was cooked at the correct temperature;
> ➢ more businesses improved their protection of food from contamination;
> ➢ more businesses provided appropriate hand washing facilities for staff; and
> ➢ more businesses used commercial dishwashers and hot water glass washers.

In addition, food businesses found it easier to locate food safety information, felt better informed about food safety regulations and many indicated that they had changed their practices as a result of the implementation of the Food Safety Standards.

In general, greater knowledge and safer food handling practices were identified in businesses that directly supply or manufacture food to high risk businesses such as hospitals, nursing homes or child care centres, large businesses, businesses with a food safety program, Victorian businesses and those in which English was the main language spoken at the business.

Although there were improvements in knowledge of safe food handling practices between 2001 and 2007, there were gaps in the following areas of knowledge about:

> ➢ correct storage temperature of chilled food and the holding temperature of hot food;
> ➢ correct cooling times and temperatures for cooked food;
> ➢ hand contact with ready-to-eat food (e.g. bread and ham);
> ➢ correct cleaning and sanitising temperatures.

Although there have been improvements in food handling practices generally, at least 10% of food businesses failed to:

> ➢ check the temperature of delivered potentially hazardous food using a thermometer or have an alternative system to ensure safety;
> ➢ cool food within specified time and temperature limits;
> ➢ protect stored chilled food from contamination in the cool room;
> ➢ supervise displays of ready-to-eat food;
> ➢ dispose of leftover displayed food, but added it to the new batch for display the next day;

➢ provide warm running water for hand washing;

➢ supply single use towels for hand drying;

➢ ensure staff wash and dry their hands correctly;

➢ maintain clean premises; and

➢ contact a pest control company or have a pest control program.

Bakeries

Compared with other types of food businesses, fewer bakeries:

➢ provided sufficient hand washing facilities;

➢ provided accessible hand washing facilities;

➢ ensured staff washed their hands in the designated hand washing facility;

➢ protected all food from contamination in the cool room;

➢ protected dry goods; and

➢ had ready-to-eat food supervised by staff.

In the Observational Survey, additional information sought from bakeries on use and storage of eggs indicated that some bakeries were using cracked eggs. Also, information obtained on cleaning and sanitising piping bags indicated that there was a failure to clean and sanitise reusable piping bags between uses – this was supported through the Telephone Survey finding of a lower level of knowledge among bakeries compared to other food businesses of the need for cleaning and sanitising piping bags between uses.

Sushi makers

Compared with other types of food businesses, fewer sushi makers:

➢ knew that the same gloves cannot be used to clean and wipe tables and unstack a dishwasher and a knife cannot be cleaned with a damp sponge;

➢ had adequate lighting; and

➢ contracted a pest control company or had a pest control program.

Sushi makers were more likely to use a dishwasher and less likely to hand wash containers and utensils compared to other food businesses.

In the Observational Survey, additional information sought from sushi makers indicated a small proportion did not store prepared rice or sushi at 5ºC or less and did not have a system to determine the amount of time the sushi had been on display at more than 5ºC. However, all that stored rice or sushi out of refrigerated conditions of 5ºC or less added vinegar (or other acidic substance to lower the pH) to the rice as an alternative to refrigeration.

1.4   Summary of Findings from the Telephone Survey of Food Businesses

The 2001 and 2007 Telephone Survey measured knowledge and awareness of food safety requirements in food businesses and the extent of knowledge of persons in supervisory positions in these businesses. There were five key areas of food safety that were the focus of the survey:

> ➤ temperature control and knowledge of temperatures and times;
> ➤ protection of food from contamination;
> ➤ personal hygiene and staff illness;
> ➤ cleaning and sanitation; and
> ➤ staff training, food safety information and food safety programs.

1.4.1   Temperature control

Between 2001 and 2007, there has been a significant improvement in the knowledge of the temperature and times required in handling potentially hazardous food. A summary of knowledge regarding temperature control is outlined below.

Receiving and checking temperature of food

In 2007, 92% of businesses had frozen, chilled or hot (temperature sensitive) food delivered to their premises. The Standards recognise that it is not possible to check the temperature of all delivered food all of the time. Overall, 23% of businesses did not think they should *always* check the temperature of delivered frozen food; 21% for chilled food; and 27% for hot food. A higher proportion of high risk[1] businesses said that they should *always* check the temperature of delivered food (chilled and frozen), for example, 86% of high risk businesses said that they should always check the temperature of delivered chilled food compared to 74% of low risk businesses.

The temperature control series of questions was changed from that asked in 2001 to be more specific to particular types of food delivered and cannot be compared.

Temperature probes

In 2007, 90% of businesses that had temperature sensitive food delivered to the business owned a temperature probe compared with 73% in 2001.

Storing chilled food

In 2007, 95% of food businesses stored chilled food and of these 85% of businesses knew that chilled food should be stored at 5°C or below compared with 78% in 2001.

Holding hot food

In 2007, 45% of food businesses held hot food in a Bain Marie unit or something similar to keep food hot (38% in 2001). Of these businesses 85% knew that cooked food should be held at 60°C or more (77% in 2001).

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[1] Food Businesses in both the Telephone and Observational Survey were classified as high, medium or low risk in accordance with the FSANZ Priority Classification System which is based on the potential risk that the business presents to public health and safety.

Cooling cooked food

In 2007, 34% of businesses reported that they cooked food and cooled it for later use (31% in 2001). Of these businesses there has been a significant improvement in the knowledge of cooling times since 2001:

> ➤ In 2007, 72% correctly answered that cooked food should be cooled from 60°C to 21°C within 2 hours – compared with 47% in 2001;

> ➤ In 2007, 83% correctly answered that cooked food should be cooled from 21°C to 5°C within 4 hours – compared with 51% in 2001.

Leaving potentially hazardous food at room temperature

In 2007 62% businesses either held hot food in a Bain Marie unit and/or cooked food and then cooled it for later use. Of these businesses, 10% indicated it was safe to leave cooked chickens and casseroles at room temperature for between 2 and 4 hours, 66% specified a shorter time frame and 21% did not know.

Temperature control			
	2001	**2007**	**Change**
Should *always* check the temperature of delivered chilled food Base: Have chilled food delivered (2007 n=1,906)	na	79%	na
Have a temperature probe Base: Have temperature sensitive food delivered (2007 n=2,113)	73%	90%	↑
Know should store chilled food at 5°C or less Base: Store chilled food (2007 n=2,184)	78%	85%	↑
Know should hold cooked food at 60°C or more Base: Holds hot food (2007 n=1,040)	77%	85%	↑
Know should cool cooked food from 60°C to 21°C within 2 hours Base: Cools cooked for later reuse (2007 n=780)	47%	72%	↑
Know should cool cooked food from 21°C to 5°C within 4 hours Base: Cools cooked food for later reuse (2007 n=780)	51%	83%	↑

1.4.2   *Protecting food from contamination*

Protecting food from contamination by staff or dirty equipment and protecting ready-to-eat food from cross-contamination by raw foods are key safe food handling practices. Poor staff hygiene, cleaning, sanitising, food handling and storage practices and a lack of staff illness policy may ultimately lead to an increased risk of contamination.

A summary of the knowledge of protecting food from contamination is outlined below.

Gloves

In 2007 85% of businesses indicated that staff wear disposable gloves when handling food (74% in 2001). Of all businesses, 97% correctly recognised that the same pair of disposable gloves should not be used to unpack raw vegetable and to slice meat (98% of businesses whose staff wore gloves and 96% of those business that did not have staff who wore gloves) and 94% correctly knew that the same pair should not be used to clean tables and also unstack the dishwasher (94% of businesses whose staff wore gloves and 91% of those businesses that did not have staff who wore gloves). There was no change in knowledge from 2001 (97% and 94% respectively).

Handling food

In 2007, 28% of all businesses incorrectly believed it was safe to directly touch bread – 25% responded true to the statement and 3% didn't know - (26% in 2001) – and 14% incorrectly thought it was safe to directly touch ham (10% in 2001). Eighteen percent incorrectly believed raw vegetables could be safely stored above uncovered cooked food (12% in 2001).

Staff illness

In determining awareness of the types of tasks an employee should avoid if they may be suffering from a food borne disease, the survey presented the scenario of an employee having diarrhoea and asked what tasks they should avoid. Without prompting, 53% believed that they should not be at work and another 49% indicated that the employee should avoid anything to do with food and food implements.

In 2001, a prompted question was asked and as a consequence the results cannot be compared.

Protecting food from contamination			
	2001	**2007**	**Change**
Employees wear disposable gloves Base: All respondents (2007 n=2,300)	74%	85%	↑
Same gloves should not be used to unpack raw vegetables and slice cold meat Base: All respondents (2007 n=2,300)	97%	97%	-
Same gloves should not be used to clean tables and unstack dishwasher Base: All respondents (2007 n=2,300)	94%	94%	-
Not safe to directly touch bread Base: All respondents (2007 n=2,300)	74%	72%	-
Not safe to directly touch ham Base: All respondents (2007 n=2,300)	90%	86%	↓
Raw vegetables should not be stored above uncovered cooked food in the cool room Base: All respondents (2007 n=2,300)	88%	82%	↓

1.4.3   *Cleaning and sanitation*

Businesses are required under the Food Safety Standards to ensure that they use only eating and drinking utensils and food contact surfaces that are clean and sanitary.

A summary of knowledge in regard to cleaning and sanitation is outlined below.

Washing containers and utensils

Compared with 2001, more businesses now use dishwashers (37% in 2001 and 47% in 2007). In 2001 63% of business only hand washed, declining to 52% in 2007. Of the businesses that used a dishwasher, 60% knew that the temperature of the final rinse cycle should be between 71ºC and 80ºC (13%) or higher than 80ºC (47%). Among businesses that hand washed utensils, 27% knew that the temperature of hot water that would kill bacteria should be between 71ºC and 80ºC (11%) or higher than 80ºC (16%)

Chemical sanitisers

In 2001, 24% of businesses that prepared ready-to-eat food thought that chemical sanitisers never needed to be used after washing cups, plates and eating utensils. In 2007, this had fallen to 8% who thought that chemical sanitisers *never* needed to be used. Seventy-six percent of businesses thought that chemical sanitisers should *always* be used.

Of all businesses, 64% correctly knew that not all chemical sanitisers needed to be mixed with hot water and 73% correctly knew that detergents did not kill micro-organisms. Ninety-six percent of businesses correctly knew that a chopping board should be washed before being sanitised.

Cleaning and sanitation			
	2001	**2007**	**Change**
Use dishwasher for washing containers and utensils Base: All respondents (2007 n=2,300)	37%	47%	↑
Only hand wash containers and utensils Base: All respondents (2007 n=2,300)	63%	52%	↓
Final dishwasher rinse should be between 71ºC and 80 ºC or over 80ºC Base: Business uses dishwasher (2007 n=1,076)	56%	60%	-
Hot water will kill bacteria between 71ºC and 80 ºC or over 80ºC Base: Business hand washes (2007 n=1,881)	38%	27%	↓
Should *always* use a chemical sanitiser after washing cups, plates and eating utensils Base: Prepare ready-to-eat food (2007 n=1,187)	64%	76%	↑
All chemical sanitisers should not be mixed with hot water Base: All respondents (2007 n=2,300)	53%	64%	↑
Detergents do not kill micro-organisms Base: All respondents (2007 n=2,300)	69%	73%	↑
Dirty chopping board must be washed before being sanitised Base: All respondents (2007 n=2,300)	94%	96%	↑

1.4.4   *Staff training and food safety information*

Most businesses now have staff training about food safety. Most found it easy to locate food safety information and felt informed about the food safety regulations.

A summary of the incidence of staff food safety training and sourcing food safety information is outlined below.

Staff training

In 2007, 89% of businesses provided training about food safety to their staff, up from 74% in 2001. Of the high risk businesses, 95% provided some form of staff food safety training. Of the 89% of businesses that provided food safety training to their staff 80% conducted some form of in-house training (57% provided informal on the job training and 27% provided workplace training programs). Thirty nine percent of businesses that provided food safety training had external staff training.

Food safety information

In 2007, if businesses needed to seek information about food safety or food hygiene they said they would contact:

➢ local council (51%, 49% in 2001);

➢ their State Health Department (33%, 42% in 2001);

➢ FSANZ (24%, 2% in 2001);

➢ an industry association (20%, 24% in 2001);

➢ the internet (17%, < 1% in 2001);

➢ internal or external food safety auditors (13%, 0% in 2001).

Small businesses were most likely to go to the local council, while large businesses were more likely to contact food safety audits or FSANZ for information about food safety or food hygiene.

Eighty five percent of businesses said that food safety information was easy to find, an increase from 68% in 2001.

Staff training and food safety information			
	2001	**2007**	**Change**
Food safety training provided to staff Base:　　All respondents (2007 n=2,300)	74%	89%	↑
Easy to locate food safety information Base:　　All respondents (2007 n=2,300)	68%	85%	↑

1.4.5 *Food safety regulation and food safety programs*

Businesses were asked about their knowledge of food safety regulations, Food Safety Standards and food safety programs. It is important to acknowledge that all food businesses in Victoria are required to have a food safety program. This is not a mandatory requirement in other States/Territories.

A summary of the knowledge of food safety regulations and food safety programs is outlined below.

Food safety regulations

Eighty six percent of businesses felt they were at least informed about current food safety regulations in 2007 compared to 81% in 2001.

In 2001, 57% of businesses were aware that the government was bringing in a new set of Food Safety Standards. In 2007, 62% of businesses knew about the Food Safety Standards and 55% of these said they changed their practices in some way as a result of their introduction. The main areas of change were in staff education (82%), food handling (75%) and equipment washing (73%). Of those businesses that had not changed their practices, 80% indicated that there was no need as they were already compliant and 1% said that the new Standards were impractical to implement.

Food safety programs

In 2007, 81% of businesses had heard of food safety programs (or food safety plans). This proportion was influenced by the Victorian results where it has been mandatory since January 2003 for all businesses, except low risk businesses, to have a food safety program. Seventy eight percent of non-Victorian businesses had heard of food safety programs compared with 94% of Victorian businesses.

Overall, 66% of food businesses indicated that they had a food safety program – 91% of Victorian businesses and 60% of non-Victorian businesses.

Food safety regulation and programs			
	2001	**2007**	**Change**
Informed about food safety regulations Base: All respondents (2007 n=2,300)	81%	86%	↑
Changed practices as a result of new Standards Base: Aware of new safety standards (2007 n=1,430)	na	55%	na
Heard of food safety programs, food safety plans or HACCP plans Base: All respondents (2007 n=2,300)	na	81%	na
Have a food safety program Base: All respondents (2007 n=2,300)	na	66%	na

1.4.6   *Bakeries*

Specific questions relating to key food handling practices of relevance to bakeries[2] were identified and the responses of bakeries compared to other food businesses. For these questions the similarities among the 120 bakeries interviewed compared to other food businesses were:

- ➢ 71% of bakeries thought that they should check the temperature of delivered chilled food using a thermometer or temperature probe;
- ➢ 90% of bakeries who stored chilled food knew that chilled food should be stored at or below 5°C;
- ➢ 89% of bakeries who hot-held cooked food knew that the correct holding temperature for cooked food was 60°C or more;
- ➢ 88% of bakeries had their employees wear disposable gloves when handling food;
- ➢ 20% of bakeries thought it was safe for food handlers to directly touch bread and 8% thought it safe to directly touch ham;
- ➢ 57% of bakeries (without prompting) indicated that staff who are unwell should not be at work at all and 41% said that they should avoid anything to do with food implements. Three percent did not know which food preparation tasks they should avoid;
- ➢ 60% of bakeries indicated that they had changed their practices with the introduction of the Food Safety Standards; 21% had not changed their practices and 19% did not know if they had or had not changed practices; and
- ➢ 85% of bakeries had heard of food safety programs, food safety plans or HACCP plans and 71% indicated that they had a food safety program (96% of Victorian businesses and 65% of non-Victorian businesses).

The differences among the 120 bakeries interviewed compared to other food businesses for the specific questions identified were:

- ➢ 98% indicated that they had a probe thermometer which was higher than other types of food businesses (87%);
- ➢ 68% of bakeries only hand washed utensils compared to 51% of other types of food businesses – 31% of bakeries used a dishwasher compared to 47% of other food businesses; and
- ➢ 8% of bakeries thought that piping bags *did not* have to be cleaned and sanitised after each use compared to a minority (3%) of other food businesses.

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[2] For the purpose of the Telephone Survey, bakeries were defined as a business that prepares fresh bread, pastries and/or pies for sale or distribution.

1.4.7   *Sushi makers*

Specific questions relating to key food handling practices of relevance to sushi makers[3] were identified and the responses of sushi makers compared to other food businesses. For these questions the similarities among the 97 sushi makers interviewed compared to other food businesses were:

➢ 76% of sushi makers thought that they should check the temperature of delivered chilled food using a thermometer or temperature probe;

➢ 92% of sushi makers had a temperature probe;

➢ 88% of sushi makers who stored chilled food knew that chilled food should be stored at or below 5°C;

➢ 81% of sushi makers who hot-held cooked food knew that correct holding temperature for cooked food was 60°C or more;

➢ 87% of sushi makers had their employees wear disposable gloves when handling food. Almost all (97%) knew that the same gloves cannot be used to unpack raw vegetables and to slice cold meat;

➢ 28% of sushi makers thought it was safe for food handlers to directly touch bread and 11% thought it safe to directly touch ham;

➢ 67% of sushi makers (without prompting) indicated that staff who were unwell should not be at work at all and 31% said that they should avoid anything to do with food implements. Four percent did not know which food preparation tasks should be avoided which was higher than other food businesses (1%);

➢ 44% of sushi makers indicated that they had changed their practices as a result of the introduction of the Food Safety Standards; 40% had not changed their practices and 16% did not know if they had or had not changed their practices; and

➢ 79% of sushi makers had heard of food safety programs, food safety plans or HACCP plans and 65% indicated that they had a food safety program (88% of Victorian businesses and 58% of non-Victorian businesses).

The differences among the 97 sushi makers interviewed compared to other food businesses for the specific questions identified were:

➢ fewer knew that the same gloves cannot be used to clean and wipe tables as well as unstack the dishwasher (87%) compared to other food businesses (94%); and that a knife cannot be cleaned with a damp sponge (90% and 95% respectively); and

➢ more sushi makers used a dishwasher (66%) compared to other types of food businesses (47%) and fewer sushi makers hand washed containers and utensils (70%) compared to other food businesses (82%).

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[3] For the purpose of the Telephone Survey, sushi makers were defined as a business that makes sushi on the premises.

1.5 Summary of Findings from the Observational Survey of Food Businesses

While the Telephone Survey measured knowledge and awareness of food safety requirements of persons in supervisory positions, the Observational Survey measured actual food handling practices at the business during the on-site visit. The Observational Survey also included the areas covered by the Telephone Survey:

- temperature control;
- protection of food from contamination;
- personal hygiene and staff illness;
- cleaning and sanitation; and
- food recall and food safety programs.

In addition, the EHOs made a general assessment of each business in regard to the maintenance and cleanliness of the premises and equipment, the adequacy of lighting and ventilation, pest control practices and chemical storage.

Not all practices could be observed by EHOs at the time the Observational Survey was undertaken, therefore in some instances the EHO asked the question of the manager at the food business.

1.5.1 Temperature control

A summary of current practice in regard to temperature control is outlined below.

Temperature probes

Businesses that check potentially hazardous food need a probe thermometer if they are to check the food temperature accurately.

Both the Telephone and Observational Surveys confirmed an increased proportion of businesses between 2001 and 2007 with a probe thermometer. Through the Observational Survey, 81% of businesses had a probe thermometer (41% in 2001). The probe thermometer was accessible to staff in 91% of businesses that had one and 93% of businesses had staff who knew how to use the probe thermometer (91% in 2001).

Of those businesses that had chilled food delivered, 53% would generally check the temperature of delivered chilled food using a thermometer – 75% checked the temperature by touch and 75% checked the temperature of the chilled food by looking it.

Temperature probes			
	2001	**2007**	**Change**
Have probe thermometer Base: Business handles potentially hazardous food (excluding no answer) (2007 n=868)	41%	81%	↑
Probe thermometer accessible to staff Base: Business handles PHF and has probe thermometer (excluding no answer) (2007 n=686)	na	93%	na
Staff know how to use probe thermometer Base: Business handles PHF and has probe thermometer (excluding no answer) (2007 n=685)	91%	93%	-

Checking temperature of delivered food

In 2007, 71% of businesses that had potentially hazardous food delivered checked that the food was received at a safe temperature (35% in 2001). Nineteen percent of businesses did not check the temperature or did not have an alternative system for ensuring the safety of delivered potentially hazardous food, representing a significant decrease from 2001 (40%).

In 2007, 96% of businesses that received deliveries of frozen food checked that it actually was frozen (91% in 2001).

Storing chilled food

Among businesses that stored chilled food, more correctly stored chilled food at or below 5ºC in 2007 (97%) compared to 2001 (91%). This improvement in practice coincides with improved knowledge of the correct storage temperature for chilled food indicated in the Telephone Survey. Three percent of businesses did not store chilled food at 5ºC or below and did not have an alternative system for ensuring that the chilled food was stored safely – compared to 7% in 2001.

Holding hot food

In 2007, 93% of businesses that held hot food, held that food at or above 60ºC (92% in 2001). Five percent did not store hot food at or above 60ºC and did not have an alternative system for ensuring that hot food was stored safely – compared to 5% in 2001.

In 2007, 94% of businesses had appropriate equipment capable of maintaining hot food at a temperature of at least 60ºC and 94% had adequate equipment for holding hot potentially hazardous food.

Cooking, cooling and reheating cooked food

In 2007, 87% of businesses that cooked food monitored that it was cooked at the correct temperature and for the correct amount of time (54% in 2001). Three percent did not cook to the guidelines or did not have another way of ensuring that food was cooked correctly – compared to 11% in 2001.

The Food Safety Standards specify that cooked food must be cooled from 60ºC to 21ºC within two hours and from 21ºC to 5ºC within an additional four hours. In 2001, 85% of businesses and 87% in 2007 that cooked and cooled food did so to the correct temperature in the correct amount of time. Eight percent of businesses did not cool food within the specified guidelines or did not have an alternative system to ensure food safety – compared to 10% in 2001.

Ninety percent of businesses in 2001 and 93% in 2007 that reheated pre-cooked food did so to the correct temperature (60ºC) within the correct amount of time (up to two hours). Four percent of businesses did not reheat pre-cooked food within the specified guidelines or have an alternative system for ensuring food was reheated safely – compared to 7% in 2001.

Display of food

Eighty-five percent businesses in 2001, and 89% in 2007, displayed potentially hazardous food at the correct temperature. Seven percent of businesses did not have food displayed at the correct temperature or did not have an alternative system for ensuring food safety.

Temperature control			
	2001	**2007**	**Change**
How delivered chilled food is generally checked – thermometer Base: Business receives chilled PHF (excluding no answer) (2007 n=805)	39%	53%	↑
Check potentially hazardous food received at safe temperature Base: Business handles PHF (2007 n=876)	35%	71%	↑
Check frozen food frozen when received Base: Business receives frozen food (2007 n=836)	91%	96%	↑
Chilled food stored at or below 5ºC Base: Business stores chilled PHF (2007 n=885)	91%	97%	↑
Hot food held at or above 60ºC Base: Business holds hot PHF (2007 n=615)	92%	93%	-
Appropriate equipment for holding hot food Base: Business holds hot PHF (2007 n=597)	97%	94%	-
Adequate equipment for holding hot food Base: Business holds hot PHF (excluding no answer) (2007 n=583)	na	94%	na
Food cooked to the correct temperature and time Base: Business cooks food (2007 n=802)	54%	87%	↑
Cooked food cooled within the correct time Base: Business cooks and cools food (2007 n=568)	85%	87%	-
Cooled cooked food reheated within correct time Base: Business reheats cooked food (2007 n=403)	90%	93%	-
Potentially hazardous food on display held at correct temperature Base: Business displays potentially hazardous food (excluding no answer) (2007 n=634)	85%	89%	-

1.5.2   *Protecting food from contamination*

A summary of current practice in regard to protecting food from contamination is outlined below.

The Observational Survey identified whether food was protected at all stages of handling in the business. These steps were: receiving; storage; processing; display; and transport of food. The vast majority of businesses protected food from contamination however a small proportion did not. More specifically:

> ➢ 97% of businesses 2001 and 98% 2007 had delivered food protected from contamination;

> ➢ 95% of businesses in 2007 and 91% 2001 were found to correctly separate raw and ready-to-eat food in the cool room or refrigerator;

> ➢ 94% of businesses in 2001 and 94% in 2007 had adequate storage space in the cool room or refrigerator;

> ➢ 86% of businesses in 2001 and 87% in 2007 that stored chilled potentially hazardous food adequately protected the food in the cool room from contamination;

> ➢ 94% of businesses in 2001 and 96% in 2007 were observed to protect dry goods from contamination during storage;

> ➢ 96% of businesses in 2007 (96%) adequately protected food on display from contamination, compared to 91% in 2001;

➢ 59% of businesses in 2007 that displayed ready-to-eat food intended for self service had the service area supervised by staff, compared to 85% in 2001;

➢ 21% of businesses in 2007 (21%) that displayed food added that to the new batch of food for display to next day, compared to 16% in 2001;

➢ 92% of businesses in 2007 that handled raw and ready-to-eat food used separate equipment for preparing and processing this food (91% in 2001) – and a further 6% cleaned and sanitised the same equipment between uses;

➢ in 2007, staff at 94% of businesses where ready-to-eat food is handled used utensils or other barriers to handle the food (94% in 2001); and

➢ in 2007, 80% of businesses used disposable gloves (68% in 2001) and of these, staff at 93% of businesses changed their gloves when necessary (91% in 2001).

Protecting food from contamination			
	2001	**2007**	**Change**
Food protected from contamination when received Base: All businesses (excluding no answer) (2007 n=897)	97%	98%	-
Raw and ready-to-eat food separated in cool room Base: Business stores chilled and ready-to-eat food (excluding no answer) (2007 n=809)	91%	95%	↑
Adequate storage space in cool room for potentially hazardous food Base: Business stores chilled and ready-to-eat food (2007 n=881)	94%	94%	-
Food protected from contamination in cool room Base: Businesses stores chilled and ready-to-eat food (excluding no answer) (2007 n=881)	86%	87%	-
Dry goods protected from contamination Base: Business stores dry goods (excluding no answer) (2007 n=897)	94%	96%	-
Displayed food protected from contamination Base: Business displays food (2007 n=653)	91%	96%	↑
Displayed ready-to-eat food supervised by staff Base: Business displays self-service food (2007 n=213)	85%	59%	↓
Food removed from display added to new batch next day Base: Business displays food (excluding no answer) (2007 n=633)	16%	21%	↑
Separate equipment used for raw and ready-to-eat food Base: Business handles raw and ready-to-eat food (2007 n=794)	91%	92%	-
Barrier (e.g. utensils) used for handling ready-to-eat food Base: Business handles ready-to-eat food (2007 n=882)	94%	94%	-
Gloves changed when necessary Base: Staff wear gloves (2007 n=737)	91%	93%	-

1.5.3   *Personal hygiene and staff illness*

A summary of current practice in regard to personal hygiene is outlined below.

The provision of adequate hand washing facilities for staff handling food is critical to ensure staff can maintain the appropriate standards of personal hygiene. There was an improvement in the hand washing facilities provided to staff between 2001 and 2007:

- ➢ 93% of businesses in 2007, compared to 83% in 2001, provided sufficient hand washing facilities;
- ➢ 94% of businesses in 2007, compared to 89% in 2001, provided accessible hand washing facilities;
- ➢ 90% of businesses in 2007, compared to 85% in 2001, had hand washing facilities with warm running water;
- ➢ 93% of businesses in 2001 and 93% in 2007 supplied soap or hand cleanser in the hand washing area; and
- ➢ 85% of businesses in 2007, compared to 79% in 2001, had hand washing facilities supplied with single use towels.

In 2007, 88% of businesses had staff who washed their hands in the designated hand washing facilities (80% in 2001). A similar proportion in 2001 and 2007 had staff who washed and dried their hands correctly (84% in 2001 and 87% in 2007) and had hand washing facilities that showed evidence of recent use (85% in 2001 and 84% in 2007). Correct hand washing practices were observed in 94% of businesses. A small proportion of staff did not wash their hands after touching their hair, scalp or body opening (6%) or before handling exposed food (5%).

More businesses had a policy for staff who were unwell in 2007 (89%) compared to 2001 (79%), although 11% of businesses did not have such a policy.

Personal hygiene and staff illness			
	2001	**2007**	**Change**
Sufficient hand washing facilities Base: All businesses (excluding no answer) (2007 n=913)	83%	93%	↑
Accessible hand washing facilities Base: All businesses (excluding no answer) (2007 n=913)	89%	94%	↑
Warm running water in hand washing facility Base: All businesses (excluding no answer) (2007 n=909)	85%	90%	↑
Hand washing facility supplied with soap Base: All businesses (excluding no answer) (2007 n=912)	93%	93%	-
Single use towels supplied Base: All businesses (excluding no answer) (2007 n=907)	79%	85%	↑
Staff wash hands in designated area Base: All businesses (excluding no answer) (2007 n=910)	80%	88%	↑
Staff wash and dry hands correctly Base: All businesses (excluding no answer) (2007 n=907)	84%	87%	-
Hand washing facility shows evidence of recent use Base: All businesses (excluding no answer) (2007 n=908)	85%	84%	-
Policy for unwell staff Base: All businesses (excluding no answer) (2007 n=908)	79%	89%	↑

1.5.4   *Cleaning and sanitation*

A summary of current practice in regard to cleaning and sanitation is outlined below.

Cleaning and sanitising is an important aspect of food safety. Use of commercial or domestic dishwashers and hot water glass washers can help achieve safe practices. A higher proportion of businesses used commercial dishwashers and hot water glass washers in 2007 compared to 2001, while manual sanitising using hot water was less common:

- ➢ 65% of businesses in 2007, compared to 30% in 2001, used a commercial dishwasher to wash and sanitise eating and drinking utensils;

- ➢ 7% of businesses in 2007, compared to 13% in 2001, used a domestic dishwasher;

- ➢ 24% of businesses in 2007, compared 16% in 2001, used hot water glass washers;

- ➢ 82% of businesses in 2007, compared to 76% in 2001, used chemical sanitisers for some or all equipment – of these only 7% did not use them appropriately; and

- ➢ 31% of businesses in 2007, compared to 58% in 2001, manually sanitised any of its equipment with hot water (without chemicals).

Cleaning and sanitation			
	2001	**2007**	**Change**
Use commercial dishwasher Base: Business uses reusable eating and drinking utensils (excluding no answer) (2007 n=508)	30%	65%	↑
Use domestic dishwasher Base: Business uses reusable eating and drinking utensils (2007 n=484)	13%	7%	↓
Use hot glass washer Base: Business uses reusable eating and drinking utensils (2007 n=497)	16%	24%	↑
Use chemical sanitisers Base: All businesses (excluding no answer) (2007 n=907)	76%	82%	↑
Manually sanitise using hot water Base: All businesses (excluding no answer) (2007 n=908)	58%	31%	↓

1.5.5   *Food recall plan and food safety programs*

In 2007, 8% of businesses were involved in the wholesale supply, manufacture or importation of food and of these 50% had a written food recall plan.

In 2007, 39% of businesses had a written food safety program (19% in 2001). Excluding Victorian businesses, 24% of non-Victorian businesses had a food safety program in 2007 and 92% of Victorian businesses had a written food safety program.

1.5.6   *General assessment*

The Observational Survey identified some general information about the premises of food businesses. In general, there were improvements made between 2001 and 2007:

➢ in 2001 90% of businesses were considered clean and well maintained and in 2007 89% were considered clean and 92% were well maintained;

➢ 99% of businesses in 2007, compared to 96% in 2001, had adequate lighting for the preparation and processing of food;

➢ 97% of businesses in 2007, compared to 90% in 2001, had adequate ventilation;

➢ 97% of businesses in 2007, compared to 90% in 2001, were free from pests;

➢ 83% of businesses in 2007, compared to 76% in 2001, contracted a pest control company or had a pest control program;

➢ 97% of businesses in 2007, compared to 94% in 2001, stored chemicals safely; and

➢ 93% of businesses in 2001 and 92% in 2007 stored personal clothes appropriately.

General assessment			
	2001	**2007**	**Change**
Premises and equipment clean Base: All businesses (excluding no answer) (2007 n=912)	90%	89%	-
Adequate lighting Base: All businesses (excluding no answer) (2007 n=912)	96%	99%	↑
Adequate ventilation Base: All businesses (excluding no answer) (2007 n=908)	90%	97%	↑
Free from pests Base: All businesses (excluding no answer) (2007 n=911)	90%	97%	↑
Contract pest control company Base: All businesses (excluding no answer) (2007 n=903)	76%	83%	↑
Store chemicals safely Base: All businesses (excluding no answer) (2007 n=885)	94%	97%	↑
Personal clothes stored appropriately Base: All businesses (excluding no answer) (2007 n=881)	93%	92%	-

1.5.7   Bakeries

Specific questions relating to key food handling practices of relevance to bakeries[4] were identified and the responses of bakeries compared to other food businesses For these questions the similarities among the 120 bakeries involved in the Observational Survey compared to all food businesses were:

➢ 77% of bakeries that received potentially hazardous food checked that it was received at a safe temperature (71%) or had an alternative system in place to ensure food safety (6%);

➢ 84% of bakeries handling potentially hazardous food had a probe thermometer;

➢ 98% of bakeries that stored chilled food did so at 5ºC or below;

➢ 99% of bakeries that held hot food did so at 60ºC or above (98%) or had an alternative system for ensuring that hot food was safely stored (1%);

➢ 93% of bakeries that displayed potentially hazardous food held it at the correct temperature (92%) or had an alternative system to ensure that it was displayed safely (1%);

➢ 99% of bakeries that handled raw and ready-to-eat food either used separate equipment for preparation (90%) or cleaned and sanitised equipment between use (9%);

➢ 93% of bakeries had staff who used utensils or other barriers when handling ready-to-eat food; and

➢ 96% of bakeries whose staff wore gloves changed them when necessary;

➢ 88% of bakeries had a policy relating to staff who were unwell; and

➢ 26% of non-Victorian bakeries had a written food safety program and 93% of Victorian bakeries had a written food safety program – 44% of bakeries nationally.

The differences among the 120 bakeries involved in the Observational Survey compared to all food businesses for the specific questions identified (among those eligible to answer the question) were:

➢ 19% of bakeries did not protect all food from contamination in the cool room/refrigerator compared to 13% of all businesses;

➢ 8% of bakeries did not protect dry goods from contamination compared to 4% of all businesses; and

➢ 63% of bakeries did not have displayed ready-to-eat food intended for self-service supervised by staff compared to 41% of all businesses;

➢ 86% of bakeries provided sufficient hand washing facilities, that is, at least one hand washing facility within each food handling area compared to 93% of all businesses;

➢ 85% of bakeries provided hand washing facilities accessible to employees compared to 94% of all businesses;

➢ 81% of bakeries had staff that washed their hands in the designated hand washing facility compared to 88% of all food businesses; and

➢ 45% of the 37% of bakeries that used reusable eating and drinking utensils used a commercial dishwasher compared to 64% of all businesses.

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[4] For the purpose of the Observational Survey, bakeries were defined as businesses that make pastries, pies, cakes and other bakery products on the premises, either for direct sale to the public, or for distribution to other businesses. It did not include businesses that manufacture bread only.

Specific questions relevant only to bakeries found:

  ➢ 17% of the 71% of bakeries that used reusable piping bags did not adequately clean and sanitise the piping bag between uses;

  ➢ 4% of bakeries showed evidence of cross contamination of foods occurring; and

  ➢ 19% of bakeries that used shell eggs (73% of all bakeries) had eggs with visible cracks.

1.5.8 Sushi makers

Specific questions relating to key food handling practices of relevance to sushi makers[5] were identified and the responses of sushi makers compared to other food businesses. For these questions the similarities among the 72 sushi makers involved in the Observational Survey compared to all food businesses were:

  ➢ 79% of sushi makers that received potentially hazardous food checked that it was received at a safe temperature (73%) or had an alternative system in place to ensure food safety (6%);

  ➢ 79% of sushi makers handling potentially hazardous food had a probe thermometer;

  ➢ 100% of sushi makers that stored chilled food did so at 5°C or below (94%) or had an alternative system in place to ensure it was stored safely (6%);

  ➢ 92% of sushi makers that held hot food did so at 60°C or above (87%) or had an alternative system for ensuring that hot food was safely stored (5%);

  ➢ 96% of sushi makers that handled raw and ready-to-eat food either used separate equipment for preparation (89%) or cleaned and sanitised equipment between uses (7%);

  ➢ 93% of sushi makers had staff who used utensils or other barriers when handling ready-to-eat food;

  ➢ 94% of sushi makers whose staff wore gloves changed them when necessary;

  ➢ 85% of sushi makers had a policy related to staff who were unwell;

  ➢ 96% of sushi makers had adequate equipment for preparing food;

  ➢ 17% of non-Victorian sushi makers had a written food safety program and 100% of Victorian sushi makers had a written food safety program – 42% of sushi makers nationally.

The differences among the 72 sushi makers involved in the Observational Survey compared to all food businesses for the specific questions identified were:

  ➢ 75% of sushi makers that displayed potentially hazardous food did so within the temperature range guidelines (≤5°C) compared to the national average of 89%. However, it is possible to safely store sushi and sushi rice up to 15°C if the pH of the rice is <4.8 and 15% of sushi makers had an alternative system for ensuring potentially hazardous food was displayed safely compared to 4% of other food businesses;

  ➢ 94% of sushi makers had adequate lighting compared to 99% of all food businesses; and

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[5] For the purpose of the Observational Survey, sushi makers were defined as businesses that make sushi products on the premises, either for direct sale to the public or for distribution to other businesses. 'Sushi products' included:

  - 'Maki' sushi – Nori seaweed and a layer of rice around a core of fillings
  - 'Nigiri' sushi – A slice of fish or other topping atop vinegared rice

- ➢ 71% of sushi businesses contracted a pest control company or had a pest control program compared to 83% of all food businesses.

Specific questions relevant only to sushi makers found:

- ➢ 56% of sushi makers stored rice and sushi at of 5°C or less and 44% stored rice or sushi out of refrigerated conditions of 5°C or less and all of these added vinegar to the rice (few measured the pH of the rice);

- ➢ 48% of the sushi businesses prepared the rice in advance and stored it for later use:
  - – 28% stored the rice for later use at 5°C or less;
  - – 19% *did not* store the rice at 5°C or less – however all acidified the rice;

- ➢ 78% of sushi businesses prepared sushi is advance of serving or sale:
  - – 56% stored the sushi in refrigeration at 5°C or less;
  - – 22% *did not* store the sushi at the 5°C or less – however all acidified the rice;

- ➢ 83% of sushi businesses presented the sushi for sale:
  - – 58% presented the sushi for sale in refrigerated conditions at 5°C or less;
  - – 13% had a system to determine the amount of time the sushi had been on display at more than 5°C; and
  - – 13% *did not* have a system to determine the amount of time the sushi had been on display at more than 5°C.

- ➢ 86% of retail and hospitality sushi makers threw away used sold sushi at the end of the day; 55% gave sushi away to staff and friends; 5% stored sushi in the refrigerator for subsequent sale and 3% used it in the manufacture of other products.

2.   Reading This Report

2.1   Reading the tables

➢ Questions are written in italics.

➢ Angle brackets <> around a word or phrase in the survey question indicate terms that may be substituted in a CATI script.

➢ The base for each table is identified under the left hand column of the table.

➢ The base for each column is given in parentheses under the column header.

➢ "n/a" means that the particular cell is not applicable and no result can be reported.

➢ "-" means that there were no responses for the cell or the responses were too low to provide a percentage.

➢ Subtotals are right justified and printed in parentheses.

➢ Proportions are rounded to the nearest whole percent.

➢ Responses may not add to 100% due to rounding.

> A superscript capital letter in a column means that the survey estimate noted in that column is significantly greater (at the 95% confidence level) than comparable estimates shown in the column(s) noted. The corresponding capital letters for comparison may be found in the column header.

2.2   Reading the graphs

➢ The relevant survey questions are identified underneath the graph header.

➢ Each column is a percentage of the base.

➢ The base for the graphs refers to the total number of responses upon which the percentages have been calculated. This is identified under the left hand corner of the graph.

➢ "No answer" or "not applicable" responses have been excluded to allow for comparability between the 2001 and 2007 results.

2.3   Statistical significance

The results of the 2007 National Food Handling Survey are reported in the following pages. These results are analysed as the reported knowledge and behaviour of food businesses throughout Australia. Only statistically significant[6] results are discussed in the text of the report.

Comparisons have been made between the 2001 Benchmark Survey and the follow-up 2007 National Food Handling Survey. Comparisons have also been made between the State and Territory results for 2007, along with other key demographics, such as the business risk classification.

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[6] Statistically significant results are reported at the 95% confidence level.

2.4　　Sampling error

The aim of selecting a sample is to be able to limit the number of interviews that can be practically achieved within the available resources but which is large enough to enable inferences about the population from which the sample is drawn.

In any sample survey a degree of sampling error will occur. The sampling error is the extent to which the survey responses can be generalised to the population from which the sample was drawn (i.e. food businesses). As the sample size increases, the sampling error decreases.

 Table 1 provides survey estimates of 50% and 80% at the 95% confidence interval for the sample sizes in the 2007 National Food Handling Survey at the national level and examples for different sample sizes at the State and Territory level.

For example, if 50% of the Telephone sample of 2,300 gave a particular response, we would be 95% certain that between 48.0% and 52.0% of the entire population would give this response.

Or looking at a smaller sample, if 80% of a sample of 100 gave a particular response, we would be 95% certain that between 72.2% and 87.8% of the entire population would give this response.

Table 1:　　Survey estimates of 50% & 80% at 95% confidence interval (CI)						
	Survey estimate of 50%			Survey estimate of 80%		
Sample size	**Confidence Interval**	**Lower band**	**Upper band**	**Confidence Interval**	**Lower band**	**Upper band**
2,300 (Telephone)	± 2.0%	48.0%	52.0%	± 1.6%	78.4%	81.6%
916 (Observation)	± 3.3%	46.7%	53.3%	± 2.6%	77.4%	82.6%
400	± 4.9%	45.1%	54.9%	± 3.9%	76.1%	83.9%
200	± 6.9%	43.1%	56.9%	± 5.5%	74.5%	85.5%
100	± 9.8%	40.2%	59.8%	± 7.8%	72.2%	87.8%
80	± 11.0%	39.0%	61.0%	± 8.8%	71.2%	88.8%
40	± 15.5%	34.5%	65.5%	± 12.4%	67.6%	91.4%
20	± 21.9%	28.1%	71.9%	± 13.1%	66.9%	93.1%

2.5   Acronyms used in this report

FSANZ	Food Standards Australia New Zealand
CATI	Computer Assisted Telephone Interview
EHO	Environmental Health Officer
PCS	Priority Classification System. A system developed by FSANZ to rank food businesses by exposure to risk.
PHF	Potentially hazardous food

2.6   Disclaimer

Please note that, in accordance with our Company's policy, we are obliged to advise that neither the Company nor any member nor employee undertakes responsibility in any way whatsoever to any person or organisation (other than Food Standards Australia New Zealand) in respect of information set out in this report, including any errors or omissions therein, arising through negligence or otherwise however caused.

3.   Introduction

This is a report of the results of the 2007 National Food Handling Survey that has been conducted by Campbell Research & Consulting (CR&C) on behalf of Food Standards Australia New Zealand (FSANZ) to evaluate the awareness, knowledge and practice of safe food handling by food businesses in Australia. The 2007 survey is a follow up to the original benchmarking survey conducted by CR&C in 2001.

The objective of the project was to provide data from food businesses regarding the awareness and understanding of the National Food Safety Standards that have been implemented in the States and Territories and also identify whether there has been any change in food handling practices since the baseline survey was conducted in 2001. The results will assist FSANZ to evaluate the impact of the National Food Safety Standards across Australia.

This report compares the results between the two surveys; however, it does not provide any interpretation of the results. A separate document will be produced by FSANZ that will contain an interpretation of the results and recommendations for any action required.

The project comprised two components: a telephone survey with managers or supervisors who managed staff handling food on a day-to-day basis to ascertain knowledge of safe food practice; and an Observational Survey of food businesses to assess safe food practice.

3.1   Background

3.1.1   The National Food Safety Standards

Food borne illness constitutes a major threat to public health. One of the vectors for transmission of food born illness is food preparation by food businesses for sale or delivery to the public. Australia has adopted an outcomes based approach to the regulation of food businesses which are part of State and Territory food legislation and enforced by States and Territories. Environmental Health Officers (EHOs) enforce the Standards at the local government level.

Minimising risk of food borne illness is a priority of all levels of government in Australia. The States, Territories and Australian Government are committed to a co-operative national system of food regulation. In August 2000, the *Australia New Zealand Food Standards Code* (the Code) was amended to include a new chapter of Food Safety Standards, for application in Australia only, to provide a nationally consistent set of food safety requirements for food businesses. This chapter, Chapter 3, adopted three standards containing requirements relating to food safety practices, premises and equipment. These are:

  ➢ Standard 3.1.1 *Interpretation and Application*;
  ➢ Standard 3.2.2 *Food Safety Practices and General Requirements*; and
  ➢ Standard 3.2.3 *Food Premises and Equipment*.

State and Territory Governments introduced the new Food Safety Standards into their legislation between 2001 and 2003. The Standards included requirements for food businesses in relation to:

  ➢ the skills and knowledge of food handlers and their supervisors;
  ➢ specific food handling controls for certain steps in the production chain;
  ➢ having a system to recall unsafe food;
  ➢ the health and hygiene of food handlers;
  ➢ the cleaning, sanitation and maintenance of equipment and the premises; and
  ➢ the suitability of the food premises and equipment.

The fourth standard, 3.2.1 *Food Safety Programs*, was included in the Code in December 2000. However, the Ministers deferred the application of Standard 3.2.1 to food businesses until sound data on food borne illness in Australia and more information on the costs and benefits of food safety programs were available. The intention of including the Standard in the Code before this information was available was to promote national consistency by providing a model for those States and Territories (such as Victoria) who wished to introduce food safety programs ahead of a national requirement.

At the time of introduction of the Food Safety Standards, it was decided that FSANZ would evaluate their impact. It was acknowledged that it was not possible to measure the effect of implementing the Standards on the end objective of setting those Standards – the protection of public health and safety. This is because the external influences on public health and safety as a whole are so complex and influenced by many external factors that a measured change to the level of health and safety of a given population group cannot generally be attributed to a single influence, a single agency or action by an agency, such as a change in food regulatory measures. Therefore, evaluation of the Standards was conducted under the assumption that a measure of any improvement in the food safety knowledge of food businesses and the food handling practices carried out by food businesses would consequently impact on the incidence of food poisoning.

3.1.2   The project

FSANZ established an evaluation program designed to assess the impact of the Food Safety Standards on food handling knowledge and practices in food businesses. The evaluation of the impact of the Standards was achieved by measuring the awareness, knowledge and practices of food business staff before and after their implementation. A baseline survey was conducted in 2001 to collect data on food safety knowledge and practices before full scale implementation of the Standards. In 2007 the survey has been repeated as a follow-up to evaluate any changes that have occurred.

The evaluation featured two core components:

> ➢ a telephone survey of persons responsible for food handling in food businesses to ascertain knowledge and attitudes in relation to food handling; and

> ➢ a separate survey of food businesses by using an on-site observational approach and conducted by Environmental Health Officers (EHOs). This component focused on observed food handling practices.

Findings from the 2007 implementation of the two surveys are compared to those from the 2001 baseline survey to assess the impact of the Standards on safe food handling knowledge and practice.

The report on the 2001 survey is available on the FSANZ website www.foodstandards.gov.au.

In the 2007 survey there was an extra component that specifically focused on the food safety knowledge and practices of bakeries and sushi manufactures. This has been in response to recent concern about specific practices of these businesses. Specific concerns are:

> ➢ In bakery businesses, there have been a number of food poisoning incidents associated with poor food handling practices. Concerns have been raised about businesses cross-contaminating by reusing piping bags or by other poor handling practices and the use of cracked and dirty eggs.

> ➢ That sushi manufacturers prepare large quantities of rice and final sushi product in advance while not applying appropriate food safety controls. Of particular concern is the refrigeration of the rice and final sushi product, as well as the addition of an acidic substance to the cooked rice to lower the pH as an alternative to refrigeration.

As a result of these concerns additional analysis of the responses to the Telephone Survey were conducted for these businesses and additional sets of questions, specifically relating to sushi and bakery businesses, were included in the on-site observational questionnaire.

3.1.3   Survey instruments

The survey instruments for the project were based on the questionnaires used for the 2001 baseline survey to enable comparison between the two surveys (pre and post full-scale adoption of the Standards). CR&C worked closely with FSANZ to refine the questionnaires to reflect changes in the food industry between 2001 and 2007; to incorporate extra questions relating to bakeries and sushi manufacturers; and to refine content and wording to allow for effective administration. For both the Telephone and Observational Surveys, the review process included:

- ➢ consultation with a Technical Reference Group established by FSANZ. Membership of the group included representatives from several of the food regulation jurisdictions across Australia as well as industry representation from peak body organisations such as the Australian Food and Grocery Council and Restaurant and Catering Australia; and

- ➢ internal review and consultation with CR&C's expert associate Robert Ford of Culinary Perspectives, a consulting group specialising in food standards and training in Australia.

The 2007 Telephone and Observational questionnaires were structured as follows:

- ➢ Screener question;
  - – Telephone – Q1
- ➢ Details about the business to classify the risk of the business (high, medium, low) using the FSANZ Priority Classification System;
  - – Telephone – Q2 to Q14
  - – Observation – Section 3 and Section 4 (Q1 to Q9)
- ➢ Specific questions for the surveys;
  - – Telephone – Q15 to Q53
  - – Observation – Q10 to Q103
- ➢ Module questions in the Observational Survey for bakeries and manufacturers of sushi:
  - – Sushi makers – Q104 to Q116
  - – Bakeries – Q117 to Q127

3.1.4   The pilot test for the Telephone Survey

The survey instrument was piloted in December 2006 using a telephone survey of 50 food businesses across Australia. The pilot was conducted to assess the viability of the questions in the variety of business contexts likely to be encountered. In particular the pilot surveys were set up to identify:

- ➢ level of explanatory information required for briefing the interviewers;
- ➢ ability to target relevant businesses and respondents directly responsible for food handling practices;
- ➢ clarity and understanding of questions;
- ➢ flow and sequence of questions;
- ➢ ease of response;
- ➢ length of questionnaire;
- ➢ estimate of potential response rate issues; and
- ➢ the reliability and validity of the sample frame and contact database for the survey.

The key findings and outcomes from the Telephone pilot were:

- ➢ the 2007 pilot survey instrument proved to be effective in gathering the required information, though further refinements were recommended;

- ➢ interviewers reported that the questionnaire was relatively easy to administer, and that participants were generally willing to take part;

- ➢ the length of the questionnaire was, on average, longer than anticipated. As a result CR&C & FSANZ identified questions for removal and refinement;

- ➢ in some places, further interviewer notes were required to clarify the intent of questions; and

- ➢ some questions were refined to improve the flow and ease of comprehension and administration.

The final Telephone Survey questionnaire in included at Appendix A.

3.1.5   *The pilot test for the Observational Survey*

The pilot test for the Observational Survey was conducted to assess the viability of the questions in the variety of business contexts likely to be encountered. The survey instrument was piloted in March 2007 using on-site observation at five food businesses in Victoria. The Observational Survey was conducted with two takeaway food outlets (selling kebabs and sushi), a café, a nursing home and a bakery. These surveys were conducted across three local councils.

The pilot test for the Observational Survey was conducted to assess the viability of the questions in the variety of business contexts likely to be encountered. In particular the observational pilot survey was set up to identify concerns with and make improvements to:

- ➢ briefing procedures;
- ➢ clarity and understanding of the survey questions;
- ➢ flow and sequence of questions;
- ➢ ease of response;
- ➢ ability of EHOs to measure elements on the survey form; and
- ➢ length of the questionnaire.

The key findings and outcomes from the pilot Observational Survey were:

- ➢ the EHOs indicated that enough written documentation was provided to understand how to implement and complete the survey form;

- ➢ some adjustments were required to the briefing instructions:

  - – *instructions on surveying techniques, rather than 'inspecting techniques'.* That is, the importance of completing the entire survey form and not leaving questions unanswered or open to interpretation by adding notes and not recording an answer;

  - – *emphasis that the survey was primarily an observation survey*;

  - – *businesses may refuse to participate.* The voluntary nature of the survey needed to be stressed and businesses should be given the letter explaining the purpose of the study when first approached;

➢ generally surveying officers were able to complete the survey with minimal instruction, although the quality of the data could be enhanced with:

  – specific explanation of the "not applicable", rather than leaving it open to interpretation;

  – linking the "skip" instructions to the responses, in addition to under the questions – if this is feasible and does not lead to "cluttering" of the survey form;

  – clarification and additional explanatory notes for some questions.

These changes were incorporated into the briefing instructions and the final on-site observational questionnaire (Appendix B).

4. Methodology

4.1 Part 1 - Telephone interviews

The telephone survey was conducted using a Computer Assisted Telephone Interview (CATI) approach. The CATI facility is maintained and operated by an Interviewer Quality Control Australia (IQCA) accredited fieldwork supplier in metropolitan Melbourne. Prior to full enumeration, pilot surveys were conducted with 50 food businesses. The full scale Telephone Survey was conducted during mid February to mid March 2007 with 2,300 surveys completed.

On average, the survey took 13.7 minutes to complete:

➢ 19% of interviews were completed in 10 minutes or less;

➢ 54% of interviews were completed in 11 minutes to 15 minutes; and

➢ 27% of interviews were completed in 16 minutes or more.

A sample of food businesses was selected using a random stratified approach. The population of food businesses was obtained through Australia on Disc, a commercial product that categorises businesses of all types in Australia.

4.1.1 Australia on Disc

Australia on Disc is owned by United Directory Systems. Australia on Disc 10 contains approximately one million business records merged from a multiplicity of database sources, both local and interstate publications, their own and collaborated telemarketing efforts, mail-out feedback, and client data. This database is continually updated (first being released in 1988) with new releases available every six months.

The system classifies the range of businesses in Australia using Australia New Zealand Standard Industry Codes (ANZSIC). CR&C reviewed the ANZSIC codes used in the Australia on Disc database (based on the 1993 classification) and identified those relating to the target food businesses for the survey. Some food business codes were excluded from the survey sample based on their anticipated very low safety risk, for example, grocery wholesaling. A list of food business codes included in the survey is at Appendix C.

4.1.2 Sampling approach – Telephone Survey

Contact details for a selection of food businesses matching the ANZSIC codes were extracted from the database and loaded into the CATI system. A random sampling approach was used to obtain a range of business types. Individual targets were set for each State and Territory, but not for metropolitan and non-metropolitan businesses (Table 2).

Table 2: Random sample by State and Territory	
NSW	400
VIC	400
QLD	400
SA	400
WA	400
TAS	100
NT	100
ACT	100
TOTAL	***2,300***

Additionally individual targets of 100 interviews each were set for bakeries and businesses that made sushi on the premises in order to specifically assess the level of knowledge of these businesses. This was not done in the 2001 survey. These businesses were targeted in the 2007 survey in response to concerns about the safety of certain food handling practices of these businesses.

> ➤ Bakeries: The minimum sample of 100 bakeries was achieved within the random sample (120 interviews were achieved).

> ➤ Sushi makers: A 'boost' sample was required to obtain the 100 interviews with sushi manufacturers – 53 interviews were achieved within the random sample and another 44 'boost' interviews (Section 6.7) were undertaken. The 44 'boost' interviews were not included in the overall random sample of 2,300 food businesses.

4.1.3   Telephone call analysis and survey response rates

In total, 16,016 calls were required to achieve the 2,300 random interviews. Outcomes from these calls are tabulated below (Table 3). Of these 16,016 calls:

> ➤ 66% resulted in contact with a business (10,586);

> ➤ 13% were not answered;

> ➤ 13% were out of service;

> ➤ 7% led to an answering machine, a fax number, a private number, were engaged or generated an error on the CATI system.

Where contact with a business was made (Table 4), 22% (2,300) completed the interview. In relation to those businesses contacted who were *not* willing or eligible to take part:

> ➤ 28% were not eligible to take part in the survey due to the nature of their business (i.e. out of scope);

> ➤ 34% refused to take part (2% were a franchise);

> ➤ 2% started the interview, but did not complete it; and

> ➤ 2% did not complete the interview due to language difficulties.

Table 3: Call Outcomes		
Outcome	**Calls (n)**	**% (16,016)**
No answer	2,024	13%
Out of service	2,128	13%
Answering machine	351	2%
Fax	363	2%
Private number (not a business)	497	3%
Engaged	67	0%
Contact made with business (refer to Table 3 below)	10,586	66%
Total	**16,016**	**100%**

Table 4: Response Rates		
Outcome	**Contacts (n)**	**% (10,586)**
Proceed with interview	2,300	22%
Appointment*	1,160	11%
Over quota	25	0%
Not available	167	2%
Subtotal	*3,652*	*34%*
Ineligible	2,923	28%
Refused	3,338	32%
Refused - franchise	218	2%
Stopped/abandoned interview	209	2%
Language difficulty	246	2%
Subtotal	*6,934*	*66%*
Total	**10,586**	**100%**

Note: * When the survey quota of 2,300 was achieved no further attempts were made to interview "appointments", "engaged" or "no answer". "Appointments" are generally loose arrangements where the interviewer has identified a likely time to reach the potential respondent.

4.2   Part 2 - Observational Survey

The decision to have EHOs conduct the on-site observation survey was based on their high degree of food handling and food safety knowledge. The survey instrument was designed accordingly with this in mind. EHOs were required to answer the survey based on what they observed. If it was not possible to observe a practice at the time of their visit, the EHOs were instructed that they could seek information from the owner/manager or supervisor at that time (N.B. A note has been included within the main body of the report as to the proportion of observed responses for a particular question). The full scale Observational Survey was conducted June to August 2007 with 916 surveys completed.

4.2.1   *Sampling approach – Observational Survey*

Food safety regulations are enforced primarily by Local Government Councils. EHOs are responsible for conducting inspections of businesses within their council to assess compliance with the food safety regulations and to investigate any possible breaches. To ensure the sample size was large enough to conduct analysis of the results on a State and Territory level and to provide optimal confidence in results at the 95% confidence interval (Section 2.4) a target of 1,120 surveys was set across 114 councils. Most councils were requested to complete 10 interviews, although larger councils were invited to complete 20 interviews. Once a council was recruited and fully briefed it was anticipated that there would be a high level of commitment to the completion of the allocated quota. However, the number of councils was over-recruited as some attrition was expected. To encourage council participation in the administration of the survey, CR&C offered to provide a summary of key results for each council returning at least 5 surveys.

The approach to selecting the random sample of councils and food businesses in which to conduct the surveys was as follows:

> ➢ A random sample of councils was generated in each State and Territory with approximately half allocated to metropolitan areas (capital city Statistical Division) and half to the non-metropolitan areas. This allocation provided a similar distribution to the random Telephone Survey and the population of food businesses throughout Australia.

> ➢ Councils were telephoned and invited to participate in the survey. Awareness of the survey was supported by the distribution of a FSANZ newsletter through existing State and Territory local government communication networks in early 2007, inclusion of the newsletter in some State and Territory local government newsletters, a letter sent by the NSW Food Authority encouraging participation in that State and supporting material sent by CR&C after contact had been made with a council.

> ➢ Once councils agreed to participate they were matched with postcodes and a random list of food businesses was generated from Australia on Disc. For each 10 target surveys, a sample of 30 food businesses was generated for each council (a number councils that agreed to complete 20 interviews, a sample of 60 food businesses was generated). If the EHO exhausted the 30 food business contacts without completing the required 10 target surveys, an additional sample was provided. Reasons for EHOs excluding a business on their list included:

>> – not involved in providing or selling food;

>> – only transported or stored non-perishable foods that did not need to be kept hot or cold (such as soft drinks, long-life milk, potato chips, confectionery and the like);

>> – only provided, produced, manufactured or processed flavours, additives or processing aids for foods;

- recently been inspected (for example, within the last few weeks so as not to place undue hardship on businesses);

- facing compliance charges or was subject to an official notice;

- closed operations; and

- outside of the council/enforcement agency area.

As with the Telephone Survey, the Observational Survey had an additional focus on sushi and bakery businesses due to the recent food safety concerns. Specific modules of questions relevant to these businesses were included.

In order to provide a nationally robust sample of bakeries and makers of sushi, a sample 100 bakeries and 100 sushi manufacturers was set. However, due to constraints in specifically identifying such businesses through the random sampling process, each council was requested to randomly select one bakery and one sushi manufacturer if they were not already included in their sample list (provided that such a business existed in the council). As there were many bakeries throughout Australia, most councils had a bakery included within their random sample. A final sample of 120 bakeries and 72 sushi manufacturers was achieved. This methodology may have lead to over sampling of sushi businesses compared to if a pure random sample was selected.

4.2.2 Data quality

To ensure consistency of approach between surveying officers, CR&C provided a survey kit to each participating council with all the necessary information to complete the interviews. This survey kit contained:

- ➢ detailed fieldwork instructions including background to the project, procedures for checking the sample of food businesses for the survey, information stressing the voluntary nature of the survey and how to manage issues of non-compliance;

- ➢ a list of food businesses to be surveyed with space to record the outcome for the business;

- ➢ copies of the survey;

- ➢ an explanation of the questions for the EHOs undertaking the Food Handling Survey observations;

- ➢ letters of explanation to be given to the food businesses surveyed; and

- ➢ a feedback form to be completed by the EHOs at the end of the survey period.

The supporting information provided to each participating council is included as Appendix D and is available on the FSANZ website at www.foodstandards.com.au.

EHOs (or their supervisor) within all participating councils were briefed (by telephone or in person) and then completed their first observation. The first returned observation was checked by CR&C with specific feedback provided to ensure that subsequent survey completion was of high quality. Approval was then given to proceed with the balance of surveys.

A key element of the Observational Survey was the actual observation of practices. However, it was foreseeable that not all food handling practices were likely to be observed within the one hour site visit anticipated for the survey. Hence, EHOs were instructed that they could seek information from the manager at that time. The percentage of responses that were observed is noted at the base of each table or chart. On average, the survey took 47 minutes to complete, with interviews ranging from less than 30 minutes (9% of interviews) to 90 minutes or longer (3% of interviews).

The completion of the survey relied on the competency and experience of the EHOs to assess whether the food handling practices were undertaken safely.

4.2.3   *Observational sample size*

The main issue delaying the return of surveys and ultimately the number of surveys completed was the availability of resources within the council. This was impacted on by the timing of the survey near the end of the financial year, availability of staff and the allocation of resources to other priorities (e.g. health issues in the council).

A target of 1,120 surveys was set, however because some attrition was anticipated, 1,256 surveys were distributed in total to 114 councils (Table 5). All 114 councils received an information pack and were personally briefed, however, at some point during the fieldwork, 16 councils notified CR&C of their inability to participate. Overall, 916 completed surveys were received from 96 councils (the ACT was considered as one council). Another two councils (one in each of New South Wales and Victoria) indicated that they had completed their allocation of 10 surveys, although these were never received by CR&C.

4.2.4   *Survey response rate*

An overall response rate of 82% was achieved from the original target sample of 1,120.

The recruitment of councils commenced at the beginning of June 2007 with the final briefing completed at the end of July 2007. A much longer than expected survey process followed with surveys accepted to the end of August 2007.

Once the survey period commenced, telephone calls and e-mails were sent to all participating councils on a regular basis to either provide additional information or follow-up on the status of the surveying process. Some individual councils requested an extension to their agreed survey date and these were accommodated where possible to ensure an adequate sample was obtained. The planned cut-off for surveys was the beginning of August 2007. To ensure a maximum return rate of surveys, the timeframe was extended and State and Territory jurisdictional survey contacts were asked to follow up with those councils from which surveys had not been returned to encourage them to complete the surveys in the extended time frame. Some EHOs volunteered to complete more surveys than required to boost the number of interviews. Final surveys were accepted to the end of August 2007.

Table 5: Observational Survey field report							
	Target surveys	**Councils recruited**	**Total surveys distributed**	**Councils cancelled**	**Councils participating**	**Surveys received**	**Response rate to target**
NSW	250	28	290	5	22	205	82%
VIC	250	25	270	3	21	197	79%
QLD	200	23	250	4	19	181	91%
SA	150	16	160	3	13	118	79%
WA	150	14	170	0	14	121	81%
TAS	40	4	40	1	3	23	58%
NT	40	3*	36	0	3	31	78%
ACT	40	1#	40	0	1	40	100%
Total	**1,120**	**114**	**1,256**	**16**	**96** (excl. 2 council returns that were not received)	**916**	**82%**

*   There are three operational units in the Northern Territory: Darwin urban, Central Australia and Top End Remote.
\#   The ACT is considered one council (LGA) with one co-ordinator managing 12 EHOs.

4.3   Limitations of the surveys

The 2007 National Food Handling Survey was well designed allowing for comparability with the 2001 benchmark survey, and methodologically sound. However, as with any research there were a number of limiting factors that impacted on the administration of the Telephone and Observational Survey.

4.3.1   Telephone Survey

The main limitations in the implementation of the Telephone Survey were:

➢ Consistent and comparable national or jurisdictional databases of food businesses were not available. Furthermore, the electronic Yellow Pages™ which was used for the sampling of food businesses in the 2001 benchmark survey has not been updated since July 2004. As a consequence, while not perfect, the Australia on Disc database was identified as the most up-to-date national database from which a suitable sample of food businesses could be drawn.

➢ For comparability it was important that the questions remained as similar to the 2001 benchmark survey. However, it was necessary to refine the questionnaire to reflect changes in the food industry between 2001 and 2007 and refine content and wording to allow for effective administration. As a consequence not all questions are entirely comparable.

➢ Measuring safe food handling knowledge required the design of questions that were not leading or permitted the respondent to give the most 'desirable' answer as opposed to that which they thought was correct.

➢ Limited survey resources did not allow the use of interpreters. As a consequence, language barriers may have impacted on a businesses willingness to participate in the survey, or impacted on the response to questions.

4.3.2   Observational Survey

The main limitations in the implementation of the Observational Survey were:

➢ Similarly to the Telephone Survey, while not perfect, the Australia on Disc database was identified as the most up-to-date national database from which a suitable sample of food businesses could be drawn as consistent and comparable national or jurisdictional databases were not available.

➢ The willingness of councils to participate in the Observational Survey as involvement required *additional* work for the EHOs.

➢ The willingness of a business to participate - poorer performing businesses may not have been included in the survey because they would be less willing to be observed if they were aware that safe food handling practices were not being observed.

➢ In general the willingness of a food business to participate was greater in quieter periods that would not adversely impact on the operation of the business, however, this factor impacted on the ability to observe food handling practices. Food handling practices during a busy period are likely to be the best indicator of the businesses actual practices.

➢ Not all food handling practices could be observed within the one hour visit – some questions could be more easily observed (e.g. correct storage temperatures) compared to others (e.g. delivered food at the correct temperature). The extent of observation as opposed to questioning could impact on the comparability between surveys.

➢ It was expected that some questions would not be easily observable, for example, the measuring of equipment such as the time and temperature of dishwasher cycles. The level of observation has been noted for all questions to allow in the interpretation of responses.

➢ Limited survey resources did not allow the use of interpreters. As a consequence, language barriers may have impacted on a businesses willingness to participate in the survey, or impacted on the response to questions.

5. Businesses involved in the National Food Handling Survey

Section 3 of the Telephone Survey, and Sections 3 and 4 of the Observational Survey, were designed to seek information on the details of the business in order to classify them into one of three risk categories (high, medium or low) using the FSANZ Priority Classification System formula[7] (refer to Appendices A and B for the questions). Analysis of these questions also provided independent demographic information on the businesses.

In 2001 some difficulties were encountered in accurately classifying the potential risk of a food business. These problems were taken into consideration when reviewing the survey instruments for both the Telephone and Observational follow-up Surveys. Specifically, the following issues were addressed:

➢ clarification of the question relating to catering to ensure off-site catering could not be interpreted to include 'food delivery' by cafés or take-aways;

➢ clarification of what 'egg products' would include in the list of types of food made, provided or sold at the food business; and

➢ businesses that manufacture or produce uncooked, fermented, chopped meat products (e.g. salami) are automatically classified as high risk. The 2001 survey found that some businesses that stated they manufactured these products did not match the business type (e.g. school tuck shop). To minimise these apparently inconsistent responses, the 2007 survey instruments were amended to include a screening 'skip' so that only businesses identified as food manufacturers (a business such as a factory that prepares and packages food on-site for later distribution and sale) were asked if they manufactured or produced uncooked, fermented, chopped meat products.

Random checks were conducted on the classifications assigned to businesses in both the Telephone and Observational Surveys to ensure confidence in the formulas. However, there were limitations if businesses misinterpreted questions. For example, if a businesses such as a supermarket that serves the general public, answers 'yes' to directly supplying or manufacturing food for child care centres, nursing homes or other high risk facilities, if they believe people from such facilities may purchase food from their business. Care was taken when reviewing the wording of questions to minimise any ambiguity, and interviewer notes were included for clarification, however, it was anticipated that a small degree of misinterpretation was unavoidable.

Not all safe food handling practices may be applicable to all food businesses, in particular low risk businesses, where food processing may be minimal or only low risk foods handled. Therefore, specific questions were asked or observed only where they were applicable to that food business. Hence, the base numbers for certain questions changes.

The proportion of businesses in the 2007 Telephone Survey that were classified as high, medium and low risk were:

➢ over one in ten (14%) were classified as high risk;

➢ just over half the businesses surveyed (53%) were classified as medium risk; and

➢ one third (33%) were classified as low risk (Figure 1).

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[7] The Priority Classification System is a scoring system that classifies food businesses into risk categories based on the type of food, activity of the business, method of processing and customer base. More information on the System can be found on the FSANZ website www.foodstandards.gov.au/newsroom/publications/thepriorityclassific352.cfm

The proportion of businesses in the 2007 Observational Survey that were classified as high, medium and low risk were:

➢ one in five (17%) were classified as high risk – a decline from 34% in 2001;

➢ eight in ten of the businesses surveyed (78%) were classified as medium risk; and

➢ one in twenty (5%) were classified as low risk (Figure 2).

Figure 1:   Business risk classification – Telephone
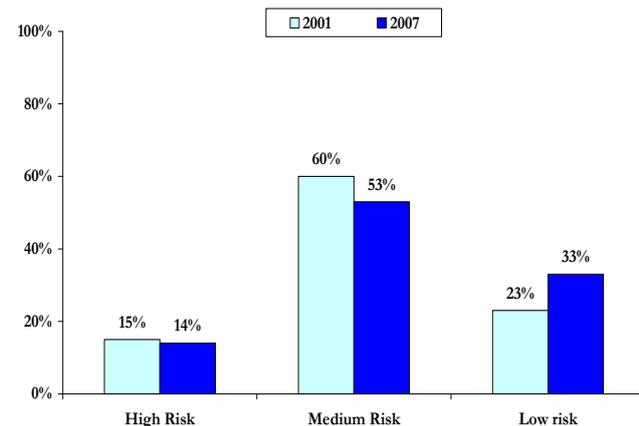
Base: All respondents
         Yr 2001 = 1,200   Yr 2007 = 2,300

Figure 2:   Business risk classification – Observation
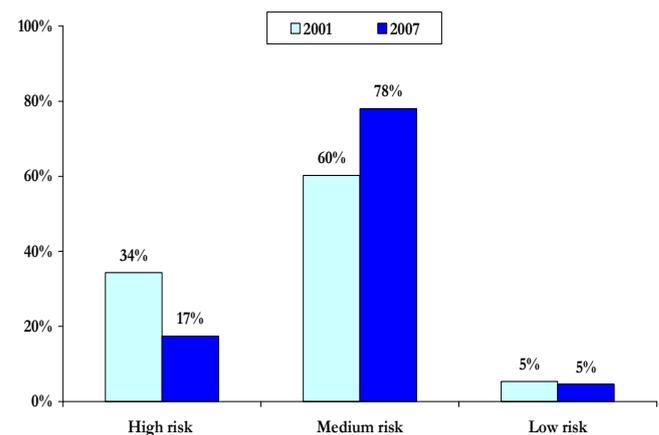
Base: All businesses (excluding no answer)
         Yr 2001 = 483   Yr 2007 = 913

A breakdown of the demographic information provided by these questions is provided in Appendix E. Some interesting points to note included:

➢ In both the 2001 and 2007 Telephone and Observational Surveys, the main types of businesses included in the sample were restaurant/café/takeaways, although in greater proportion in the Observational Survey (68%) compared to the Telephone Survey (47%).

➢ A similar proportion of businesses included in the 2007 Telephone and Observational Surveys were classified as manufacturers (14% and 12% respectively). One in ten in each survey manufactured products that were not shelf stable (9% and 8% respectively). A minority manufactured or produced uncooked, fermented, chopped meat products (2% and 1% respectively).

➢ 37% of all businesses surveyed in the 2007 Telephone Survey indicated they were involved in catering activities. This included 25% that conducted on-site catering only, 6% that conducted off-site catering only and 6% undertook both on and off-site catering. 26% of all businesses surveyed in the Observational Survey indicated they were involved in catering activities. This included 16% that conducted on-site catering only, 7% that conducted off-site catering only and 4% undertook both on and off-site catering.

➢ The vast majority of food businesses in the 2007 Telephone and Observational Surveys were classified as small businesses (90% and 87% respectively). A similar incidence of small businesses was identified in the 2001 Telephone and Observational Surveys (93% and 90% respectively).

➢ A higher proportion of businesses included in the 2007 Telephone Survey (20%) compared to the 2001 Telephone Survey (17%) provided food to 'at risk' or vulnerable groups. In contrast, a lower proportion of business in the 2007 Observational Survey (9%) compared to 2001 Observational Survey (15%) provided food to 'at risk' or vulnerable groups.

➢ In the 2007 Observational Survey, English was the main language spoken in 88% of businesses, while 12% spoke a language other than English.

6. Part 1 - Telephone survey among food businesses

The objective of the telephone survey was to identify the extent of knowledge about food safety issues and practices in food businesses. The primary interviewing technique was to encourage businesses to respond, but not force them to guess. It is just as useful to identify the extent to which people do not know the answer to food handling questions as it is to identify correct and incorrect responses.

6.1 Temperature control

Controlling the temperature of food is a critical element of food safety. Businesses can maintain food safely by keeping chilled food 5°C or below and hot food 60°C or hotter, or by ensuring that the time the food is at another temperature does not allow bacteria to multiply to unsafe levels. Businesses were asked about their temperature control practices and about their knowledge of the temperatures that were suitable for keeping hot and cold food safe.

Food that has to be kept under temperature control to remain safe is termed *potentially hazardous food*. However, in a short telephone interview with businesses that may be unfamiliar with this expression, questions generally referred to chilled or hot food. Therefore, the report of some questions in the Telephone Survey refers to these foods as 'temperature sensitive'.

Some foods may be kept at refrigeration temperatures for quality rather than safety reasons for example, whole fresh fruit and vegetables. The survey did not distinguish these from foods that were kept chilled for safety reasons.

The temperature control series of questions was changed from that asked in 2001 to be more specific to particular types of delivered food. They were also phrased to test knowledge (e.g. How often should you check?) rather than ascertaining actual behaviour (e.g. How often would you check?). As a consequence the responses cannot be compared.

6.1.1   *Receiving frozen, chilled and hot food*

Most of the businesses surveyed in 2007 had frozen (82%) or chilled (83%) food delivered to their business. Only 1% had hot food delivered. Overall, over nine in ten (92%) had temperature sensitive food delivered to their business, which was, either frozen, chilled or hot foods (Figure 3).

The Food Safety Standards require businesses to take all practicable measures to ensure that they only accept deliveries of potentially hazardous food that is either 5°C or below if a chilled food and 60°C or above if a hot food. Alternatively the business can accept food at another temperature if the business transporting the food can demonstrate that the time /temperature combination is safe. Frozen food must be hard frozen.

The business is required to take 'all practicable methods' because the Standards recognise that it's not possible to check all food all of the time. Businesses can check randomly or regularly where a business has established that a particular deliverer is delivering within accepted temperatures.

Figure 3:   Receiving food

Q15 (2007): Do you have frozen foods delivered to your business?
Q18 (2007): Do you have chilled foods delivered to your business?
Q21 (2007): Do you have hot foods delivered to your business?
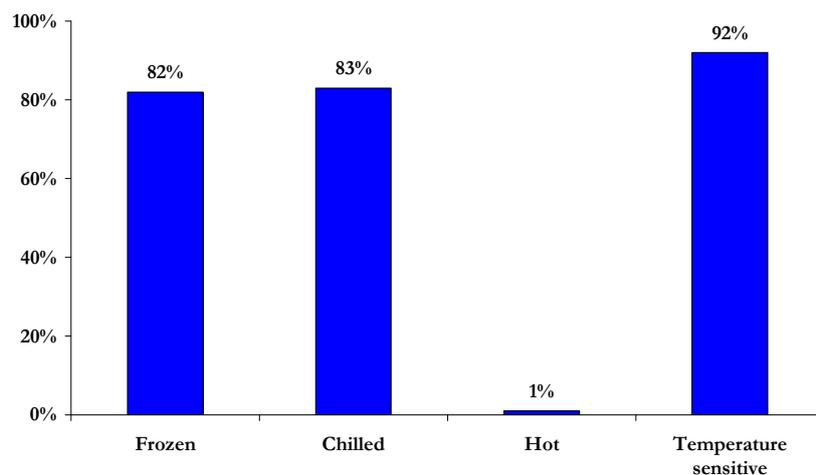
Base: All respondents
         Yr 2007 = 2,300

6.1.2   *Receiving frozen food*

Businesses that had frozen food delivered (82% of the sample) were asked how often they should check the temperature of the delivered frozen food and how they should check it. Over three in four (77%) answered that the temperature of the frozen food should *always* be checked when delivered. A further 15% thought it should be checked *regularly* and 4% *occasionally*. Three percent said the temperature should *never* be checked (Figure 4).

In total, 97% of businesses indicated that they should check the temperature of delivered frozen food though the method varied. Seven in ten (72%) of those who had frozen food delivered indicated that the temperature should be checked with a thermometer. Fewer considered a laser gun an appropriate tool (15%). Under one in ten (9%) thought touch, the appearance of the frozen food (7%) and using the temperature gauge in the delivery vehicle (6%) as means for checking the temperature of frozen food. A minority (4%) said they did not know how they should check the temperature of delivered frozen food (Figure 5).

Figure 4: Frequency of checking temperature of delivered frozen food

Q16 (2007): How often should you check the temperature of frozen food when delivered?
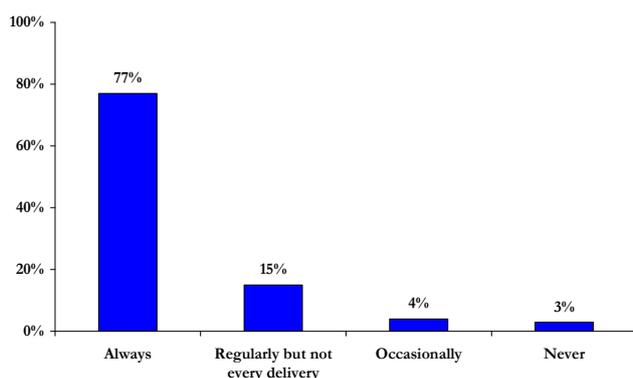
Base: Have frozen foods delivered
         Y 2007= 1,892

Figure 5: Checking the temperature of delivered frozen food

Q17 (2007): How should you check the temperature of delivered frozen food?
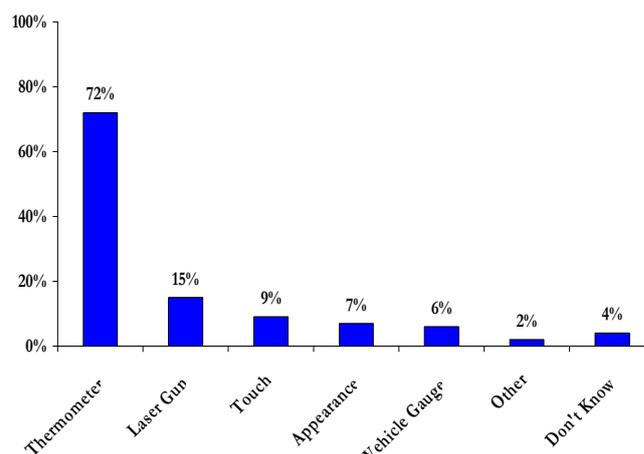
Base: Have frozen foods delivered
         Yr 2007 =1,892
Note: Multiple response possible

Almost all businesses thought that the temperature of delivered frozen food should always be checked at least regularly and this would most commonly be with a thermometer. Four percent of businesses don't know how to check the temperature of chilled food.

Temperature check of delivered frozen food by business risk classification and business size

Comparing risk classifications and business size illustrated some difference in frequency of checking the temperature of **frozen food** delivered to the business (Table 6). Small businesses were less likely to say they should *always* check the temperature of delivered frozen food (76%) compared to large businesses (86%). High (81%) and medium risk (78%) businesses were more likely to say they should *always* check temperature of delivered frozen food compared to low risk (74%) businesses.

Table 6: Check temperature of delivered frozen food by business risk classification and business size						
Q16 (2007): How often should you check the temperature of frozen food when delivered?						
	Business risk classification			Business size		Total (1,892) % F
	High Risk (253) % A	Med. Risk (1,014) % B	Low Risk (625) % C	Small (1,523) % D	Large (174) % E	
Always	81^C	78^C	74	76	86^D	77
Regularly, but not every delivery	13	15	15	15	10	15
Occasionally	2	3	7^{AB}	4	2	4
Never	4	3	4	4	2	3
Don't know	-	1	1	1	1	1

Base: Have frozen food delivered

Temperature check of delivered frozen food by location

Almost all Victorian food businesses (99%) indicated that the temperature of frozen food should be checked at least regularly. Businesses located in the ACT were less likely to think that they should *always* check the temperature if delivered frozen food (67%) compared to the Australian average (77%) and more likely to think that it should be checked regularly, but not every delivery (24%, compared with 15% Australian average).

Victorian food businesses were more likely than those in any other State to indicate that a thermometer/temperature probe should be used to check the temperature of delivered frozen food (77%, compared to 72% for the Australian average). In contrast, South Australian businesses more often mentioned the use of a laser/ray gun for temperature checking (22%, compared with 15% Australian average).

6.1.3   *Receiving chilled food*

Businesses that had chilled food delivered (83% of the sample) were asked how often they should check the temperature of the delivered chilled food and how they should check it.

Eight in ten (79%) answered that the temperature of the chilled food should *always* be checked when delivered with a further 13% answering *regularly* and 4% *occasionally*. Three percent said the temperature should *never* be checked (Figure 6).

Three in four (74%) correctly thought the temperature should be checked using the thermometer/temperature probe. Just over one in ten said that a laser gun should be used (14%). Touch (8%), the appearance of chilled food (4%) and the temperature gauge in the delivery vehicle (5%) were considered appropriate mechanisms for checking temperature. A minority (4%) said they did not know how they should check the temperature of delivered chilled food (Figure 7).

Figure 6:   Frequency of checking temperature of delivered chilled food

Q19 (2007): How often should you check the temperature of chilled food when delivered?

Base: Have chilled foods delivered
        Yr 2007 = 1,906

Figure 7:   Checking the temperature of delivered chilled food

Q20 (2007): How should you check the temperature of delivered chilled food?
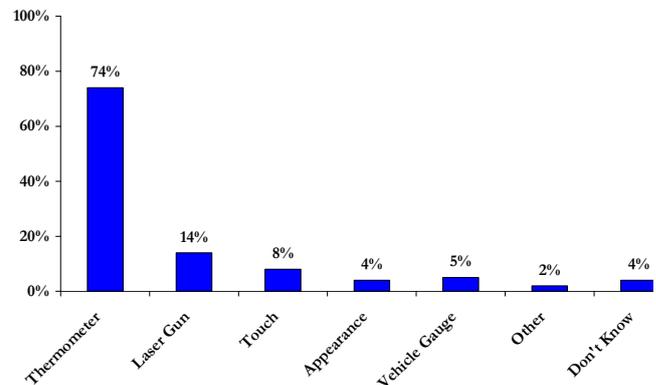
Base: Have chilled foods delivered
        Yr 2007 = 1,906
Note: Multiple response possible

Almost all businesses thought that the temperature of delivered chilled food should be checked at least regularly and this would most commonly be with a thermometer. Four percent of businesses don't know how to check the temperature of chilled food.

Temperature check of delivered chilled food by business risk classification and business size

Nearly all large businesses (92%) said they should *always* check the temperature of **chilled food** when delivered compared to only 77% of small businesses (Table 7). Low risk businesses said they should check the temperature less often than high risk businesses.

Table 7:	Check temperature of delivered chilled food by business risk classification and business size					
Q19 (2007): How often should you check the temperature of chilled food when delivered?						
	Business risk classification			**Business size**		
	High Risk (278) % A	**Med. Risk (1,017) % B**	**Low Risk (611) % C**	**Small (1,543) % D**	**Large (182) % E**	**Total (1,906) % F**
Always	86[BC]	80[C]	74	77	92[D]	79
Regularly, but not every delivery	9	13	14	13[E]	6	13
Occasionally	1	3	7[AB]	4[E]	1	4
Never	3	2	4	3[E]	1	3
Don't know	1	2	2	2	1	2

Base:　　Have chilled food delivered

Temperature check of delivered chilled food by location

Businesses located in the Northern Territory were less likely to think that they should *always* check the temperature of delivered chilled food (66%) compared to the Australian average (79%) and more likely to think that it should be checked regularly, but not every delivery (23%, compared with 13% Australian average).

Victorian food businesses were more likely than those in any other jurisdiction to indicate that a thermometer/temperature probe should be used to check the temperature of delivered chilled food (84%, compared to 74% for the Australian average). In contrast, South Australian businesses more often mentioned the use of a laser/ray gun for temperature checking (20% compared with 14% Australian average). One in ten (9%) Western Australian businesses were uncertain how to check the temperature of delivered chilled food compared with an Australian average of 4% being unsure how to check the temperature.

Temperature check of delivered frozen and chilled food by staff knowledge and presence of food safety program

The temperature of delivered frozen and chilled food was more likely to be identified as *always* needing to be checked by (Table 8):

 ➢ businesses who were well informed about current food safety regulations compared to those who felt they were not;

 ➢ businesses with a food safety program compared to those who did not have a food safety program; and

 ➢ businesses that provided staff training about food safety compared to those who did not.

There was overlap among these business types.

Conversely the temperature of frozen and chilled food was more likely to be identified as *never* needing to be checked by those that did not feel informed about food safety regulations, businesses who did not have a food safety program and businesses that did not provide staff training.

Table 8:	Check temperature of delivered food by staff knowledge and presence of food safety program						
Q16 (2007): How often should you check the temperature of frozen foods when delivered? *Q19 (2007): How often should you check the temperature of chilled food when delivered?*							
	Informed of food safety regulations		Staff training		Food safety program		
	Total informed % A	Not informed % B	Yes % C	No % D	Yes % E	No % F	Total % G
Always should check for delivered FROZEN food (n=1,892)	78[B]	69	78[D]	63	82[F]	68	77
Never should check for delivered FROZEN food (n=1,892)	3	6[A]	3	7[C]	2	6[E]	3
Always should check for delivered CHILLED food (n=1,906)	81[B]	65	81[D]	60	83[F]	70	79
Never should check for delivered CHILLED food (n=1,906)	3	7[A]	2	14[C]	2	5[E]	3

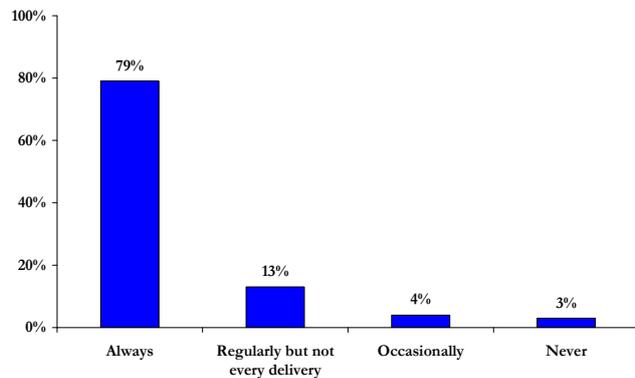Base: Have frozen /chilled food delivered

6.1.4   *Receiving hot food*

Businesses that had hot food delivered (1% of the sample) were asked how often they should check the temperature of the delivered hot food and how they should check it. Please note that the results should be interpreted with care due to the low sample base.

Seven in ten (73%) answered that the temperature of the hot food should *always* be checked when delivered, with a further 12% answering *regularly* and 3% *occasionally*. Three percent said the temperature should *never* be checked (Figure 8).

Three in four (76%) thought that the temperature of delivered hot food should be checked using a thermometer/temperature probe. One in five (18%) said they did not know how they should check the temperature of delivered hot food (Figure 9).

**Figure 8: Frequency of checking temperature of delivered hot food**

Q22 (2007): How often should you check the temperature of hot food when delivered?
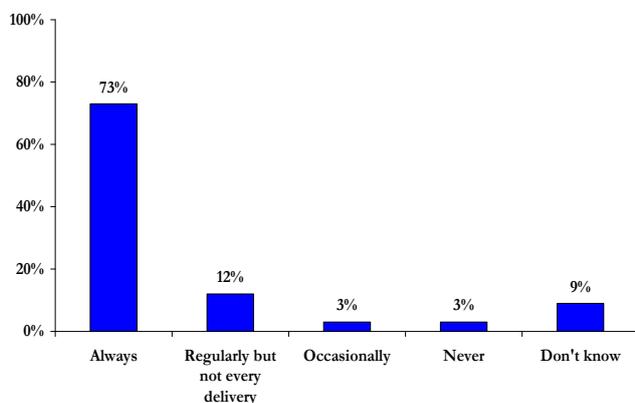
Figure 9: Checking the temperature of delivered hot food

Q23 (2007): How should you check the temperature of delivered hot food?

Base:	Have hot foods delivered
	Yr 2007 = 33*
Note:	* small base
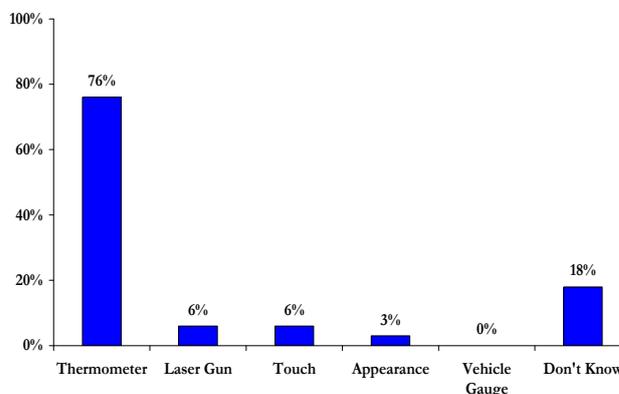
Base:	Have hot foods delivered
	Yr 2007 = 33*
Note:	* small base
	Multiple response possible

6.1.5   *Thermometers*

The Food Safety Standards require that food businesses handling potentially hazardous foods must have a temperature measuring device which is readily accessible and accurate. Businesses that check temperatures of food need a probe thermometer if they are to check the food temperature accurately. Information was sought on whether businesses had a probe thermometer.

Most (90%) businesses that had temperature sensitive food delivered had a probe thermometer (Figure 10). This represents a significant increase since 2001 where 73% of businesses had a temperature probe.

Businesses more likely to have a temperature probe in 2007 included:

> ➢ high risk businesses (96%) compared to medium (91%) and low risk businesses (86%);

> ➢ large businesses (97%) compared to small (89%); and

> ➢ Victorian businesses (96%) compared to all other States and Territories (lowest in New South Wales, 86% and Western Australia, 84%) – the incidence was also higher in the Northern Territory (95%) although this was not a statistically significant difference compared to other States.

Figure 10: Temperature probe

Q9e (2001): Do you have a temperature probe? That is, a thermometer that can be inserted into food to measure its temperature?

Q24 (2007): Do you have a temperature probe? That is, a thermometer that can be inserted into food to measure its temperature?

Figure 11: Temperature probe by location

Q24 (2007): Do you have a temperature probe? That is, a thermometer that can be inserted into food to measure its temperature?
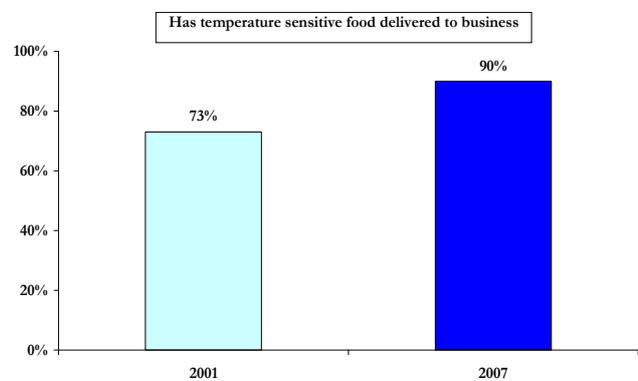
Base: Has temperature sensitive food delivered to business
         Yr 2001 = 818   Yr 2007 = 2,113
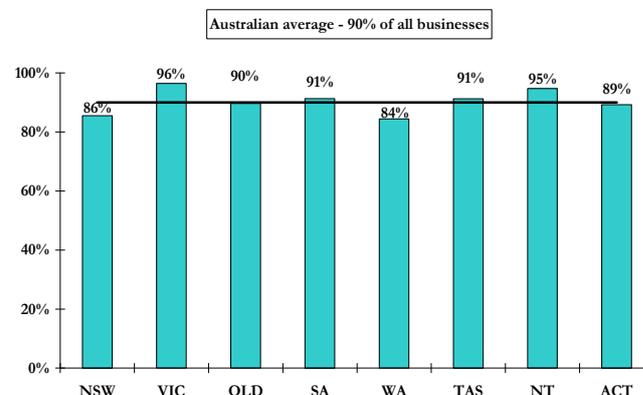
Base: Has temperature sensitive food delivered to business
         NSW = 366   VIC = 367   QLD = 364   SA = 367
         WA = 366   TAS = 91   NT = 94   ACT = 93

Among businesses that had temperature sensitive food delivered, there has been a significant increase between 2001 and 2007 in the proportion with a temperature probe.

Businesses with a temperature probe were significantly more likely to say they should *always* check the temperature of their delivered foods than those without a probe (Table 9).

Frozen food can be checked that it is frozen in several ways including checking that it is hard frozen. Eight in ten businesses (79%) that had frozen food delivered and had a temperature probe believed they should *always* check the temperature when the food was delivered. However, 60% of businesses that had frozen food delivered but did not have a temperature probe answered that that the temperature food should *always* be checked.

The only ways to check the temperature of chilled food and hot food is either with a laser gun, or more accurately with a temperature probe. If a laser gun is used, then regular checks with a temperature probe should also be made. Eighty one percent of businesses that had chilled food delivered, and had a probe, answered that food should always be checked but 62% that had no probe said the temperature should always be checked.

Table 9: Check temperature of delivered food by use of temperature probe				
Q16 (2007): How often should you check the temperature of frozen food when delivered? *Q19 (2007): How often should you check the temperature of chilled food when delivered?*				
	Frozen food delivered		**Chilled food delivered**	
	Have probe (1,709) % A	**No probe (183) % B**	**Have probe (1,726) % C**	**No probe (180) % D**
Always	79[B]	60	81[D]	62
Regularly, but not every delivery	14	19	12	18
Occasionally	3	9[A]	4	6
Never	3	9[A]	2	9[C]
Don't know	1	4[A]	1	4[C]

Base: Have frozen/chilled food delivered
Note: The base was too low to analyse by delivered hot food

6.1.6   *Temperature controlled storage*

If food businesses stored **chilled food** they were asked about their knowledge of storage temperatures of chilled food. Most (95%) businesses stored chilled food on their premises (Figure 12) and most of those (85%) correctly knew, unprompted, that their chilled food should be stored at or below 5ºC (Figure 13). This represents a significant increase from 78% in 2001. One in ten (10%) did not know the storage temperature for chilled food and 5% incorrectly said over 5ºC.

There was a significant decline in the proportion who did not know at what temperature chilled food should be stored (15% in 2001 to 10% in 2007).

Figure 12: Storing chilled food

Q10a (2001):   Do you store chilled food at your business?
Q25 (2007):   Do you store chilled food at your business?
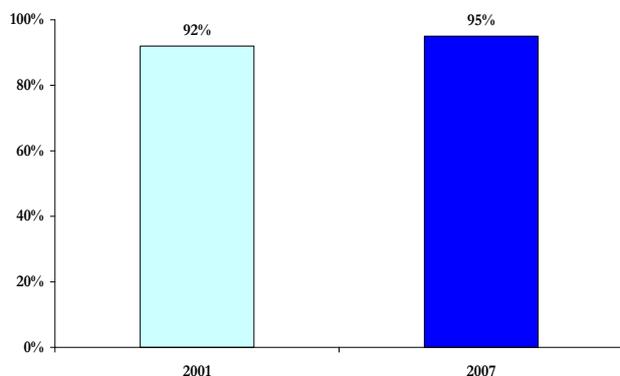
Figure 13: Temperature for storing chilled food

Q10b (2001):   What temperature should chilled food be stored at?
Q26 (2007):   What temperature should chilled food be stored at?

Base: All respondents
         Yr 2001 = 1,200   Yr 2007 = 2,300
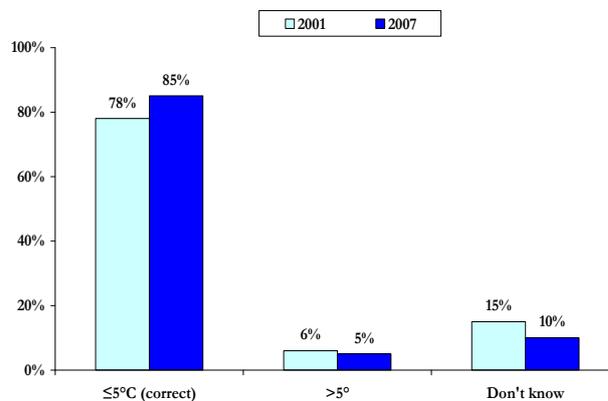
Base: Store chilled food
         Yr 2001 = 1,102   Yr 2007 = 2,184

Knowledge of storage temperature for chilled food by location

The correct storage temperature of chilled food was more likely to be identified by businesses in Victoria (92%) and South Australia (89%) compared to the Australian average (85%). Lower levels of knowledge of the correct storage temperature for chilled food were evident in New South Wales (81%) and Western Australia (80%) compared to the Australian average – the incidence was also lower in the Northern Territory although this was not a statistically significant difference (Figure 14).

Metropolitan businesses were more likely to identify the correct storage temperature of chilled food (87%) than their non-metropolitan counterparts (83%).

Figure 14: Temperature for storing chilled food by location

Q26 (2007): What temperature should chilled food be stored at?

Base:　Has temperature sensitive food delivered to business (Yr 2007 = 2,184)
　　　NSW = 381　VIC = 382　QLD = 380　SA = 381　WA = 380　TAS = 93　NT = 91　ACT = 96
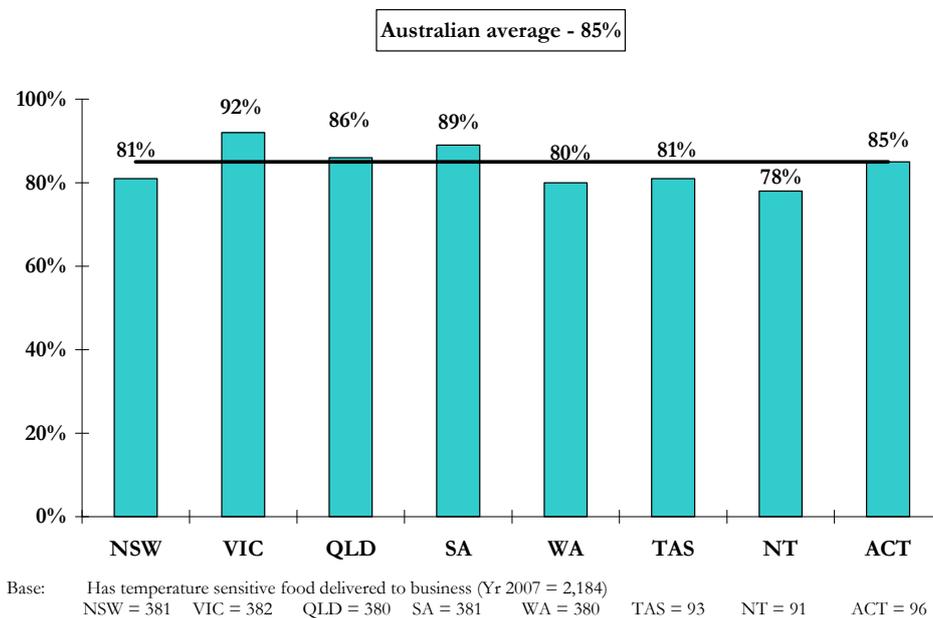
Knowledge of storage temperature for chilled food by business risk classification and business size

While most businesses that stored chilled food (85%) correctly knew that their chilled food should be stored at or below 5ºC, awareness was highest among large businesses (93%), and high and medium risk businesses (87% each) (Table 10). One in seven (13%) *high risk* businesses did not know the correct temperature to store chilled food.

Table 10: Temperature for chilled food storage by business risk classification and business
Q26 (2007): *What temperature should chilled food be stored at?*

	Business risk classification			Business size		
	High Risk (321) % A	Med. Risk (1,164) % B	Low Risk (699) % C	Small (1,772) % D	Large (189) % E	Total (2,184) %
5°C or less (correct)	87C	87C	82	84	93D	85
More than 5°C	3	5	6	5	4	5
Don't know	10	8	12B	10E	3	10

Base: Stores chilled food

Among businesses that store chilled food, there has been an increase in the proportion that were aware of the correct temperature storage (5°C or less) - to 85%. One in seven (13%) *high risk* businesses did not know the correct temperature of storing chilled food.

Knowledge of storage temperature for chilled food by staff knowledge and presence of food safety program

Of businesses that stored chilled food, nearly a third (29%) of those that did not have staff food safety training did not know the correct temperature that chilled food should be stored (10% said an incorrect temperature and 19% did not know). In comparison, 13% of businesses with staff food safety training did not know the correct temperature storage (Table 11).

Businesses well informed about current food safety regulations were more likely to know the correct temperature than those businesses not well informed (87% and 75% respectively) and those with a food safety program compared to those without (88% and 79% respectively).

Table 11:	**Temperature for chilled food storage by staff knowledge and presence of food safety program**						
Q26 (2007): What temperature should chilled food be stored at?							
	Informed of food safety regulations		**Staff training**		**Food safety program**		
	Total informed (1,886) % A	**Not informed (296) % B**	**Yes (1,953) % C**	**No (231) % D**	**Yes (1,447) % E**	**No (737) % F**	**Total (2,184) %**
5°C or less (correct)	87^B	75	87^D	71	88^F	79	85
More than 5°C	5	7	5	10^C	4	7 ^E	5
Don't know	8	18^A	9	19^C	7	14^E	10

Base: Stores chilled food

6.1.7   Hot-holding cooked food

Food businesses that hold food hot in a display unit or similar were asked what temperature the food should be held. Just under half (45%) the businesses held hot food (Figure 15) and most of those (85%) correctly knew, unprompted, that their hot food should be held at or above 60ºC (Figure 16). This represented a significant increase from 2001 (77%). One in ten (12%) did not know the correct temperature for holding hot food and 4% incorrectly said hot food should be held below 60ºC.

Figure 15: Hot-holding cooked food

Q11a (2001): Do you hold cooked food in a bain marie unit (or something similar) to keep food hot?

Q27 (2007): Do you hold cooked food in a bain marie unit (or something similar) to keep food hot?
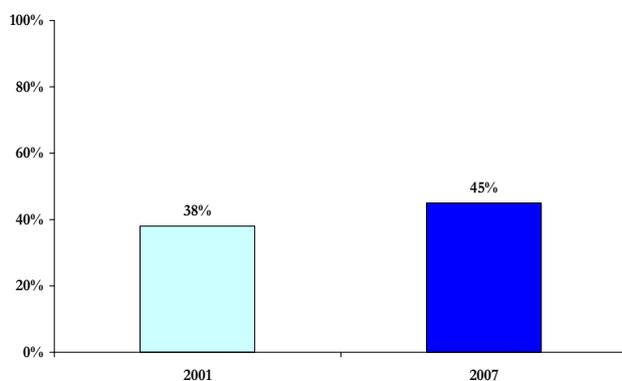
Figure 16: Temperature for hot-holding cooked food

Q11b (2001): What temperature should cooked food be held in a bain marie unit (or something similar) to keep food hot?

Q28 (2007): At what temperature should cooked food be held in a bain marie unit (or something similar to keep food hot)?

Base: All respondents
         Yr 2001 = 1,200   Yr 2007 = 2,300
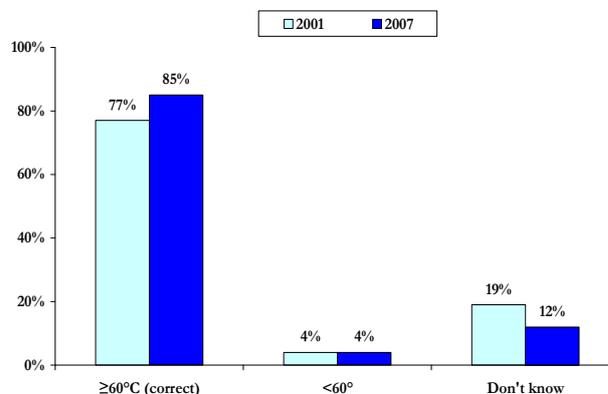
Base: Holds hot food
         Yr 2001 = 452   Yr 2007 = 1,040

Knowledge of hot-holding temperature for cooked food by location

There were no significant differences by State/Territory in terms of knowledge of the correct holding temperature for cooked food when compared to the Australian average (Figure 17).

Metropolitan businesses were more likely to identify the correct holding temperature of hot food (88%) than their non-metropolitan counterparts (82%).

Figure 17: Knowledge of hot-holding temperature for cooked food by location

Q28 (2007): At what temperature should cooked food be held in a bain marie unit (or something similar to keep food hot)?

Australian average - 85%
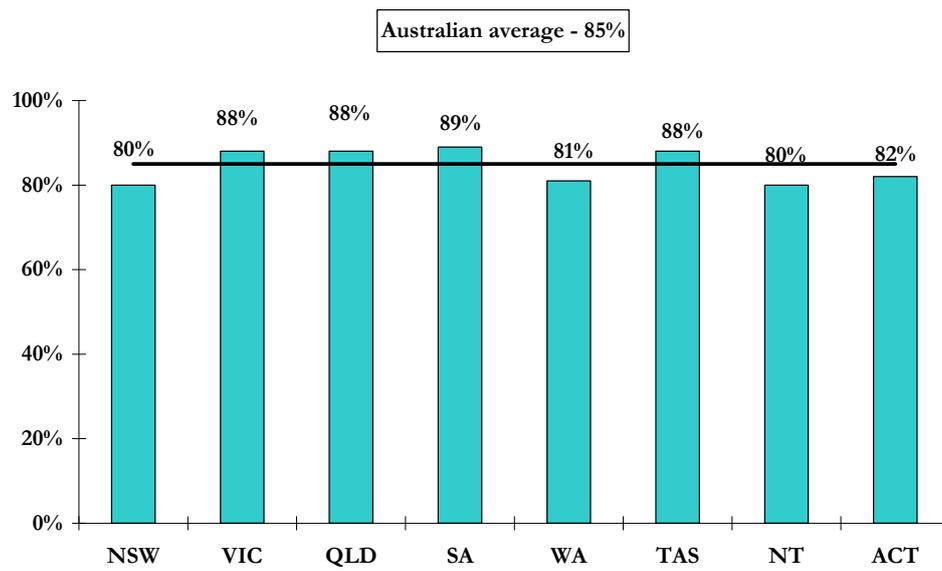
Base: Has temperature sensitive food delivered to business (Yr 2007 = 1,040)
NSW = 164   VIC = 163   QLD = 202   SA = 167   WA = 207   TAS = 43   NT = 49   ACT = 45

Knowledge of temperature for hot-holding cooked food by business risk classification and business size

While most businesses that held hot food correctly knew that their hot food should be held at or above 60°C (85%), awareness was highest among large businesses (94%) and high (88%) and medium risk (86%) businesses (Table 12).

Table 12: Temperature for hot-holding cooked food by business risk classification and business size						
Q28 (2007): At what temperature should cooked food be held in a bain Marie unit?						
	Business risk classification			Business size		
	High risk (122) % A	Med. risk (595) % B	Low risk (323) % C	Small (785) % D	Large (124) % E	Total (1,040) %
Less than 60°C	7 B	3	4	4	2	4
At or above 60°C (correct)	88C	86C	81	84	94D	85
Don't know	6	11	15A	13E	3	12

Base: Holds hot food

> Among businesses that held hot food, there has been an increase in the proportion that were aware of the correct temperature the food should be held at (60°C or above) – to 85%. One in seven (13%) *high risk* businesses did not know the correct temperature for holding cooked food.

Knowledge of temperature for hot-holding cooked food by staff knowledge and presence of food safety program

Those businesses with staff training were more likely to know the correct temperature to hold hot food than those without (86% and 66% respectively). This was also the case for businesses informed about food safety regulations (87%) and those with a food safety program (89%) (Table 13).

Table 13: Temperature for hot-holding cooked food by staff knowledge and presence of food safety program						
Q28 (2007): At what temperature should cooked food be held in a bain marie unit?						
	Informed of food safety regulations		Staff training		Food safety program		
	Total informed (914) % A	Not informed (125) % B	Yes (955) % C	No (85) % D	Yes (704) % E	No (336) % F	Total (1040) % G
Less than 60°C	4	3	3	7[C]	3	4	4
At or above 60°C (correct)	87[B]	71	86[D]	66	89[F]	77	85
Don't know	10	26[A]	10	27[C]	8	19[E]	12

Base: Holds hot food

6.1.8   *Cooling cooked food*

If food is prepared and cooked in advance it needs to be cooled rapidly to be kept safe. This only applies to potentially hazardous food (i.e. food that may contain bacteria and which provides a medium for bacterial growth). However, to keep questions straightforward, if businesses cooked *any* types of food for later use, they were asked some questions about cooling.

One third (34%) of businesses reported that they cooked food and cooled it for later re-use (Figure 18).

Figure 18: Cooking food and cooling for re-use

Q12a (2001):   Do you cook food and then cool it for later use?
Q29 (2007):   Do you cook food and then cool it for use at least several hours later?

Base: All respondents
Yr 2001 = 1,200   Yr 2007 = 2,300
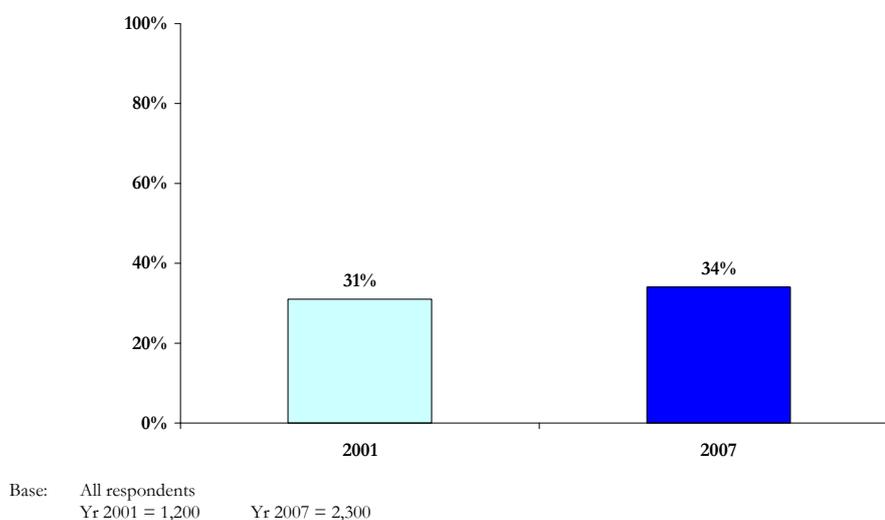
All businesses that cooled cooked food for later re-use were asked whether cooked food should be cooled from 60°C – 21°C within two hours or four hours; and whether cooked food should be cooled from 21°C – 5°C within four hours or six hours.

For the cooling of cooked food from 60°C – 21°C, over seven in ten (72%) correctly answered two hours (Figure 19).

For the cooling of cooked food from 21°C – 5°C, over eight in ten (83%) correctly answered four hours (Figure 20). Two in three (67%) businesses correctly answered both questions in relation to the cooling of cooked food.

Figure 19: Temperature and time for safely cooling cooked food

Q30 (2007): Does cooked food need to be cooled from 60° to 21°Celsius within 2 hours or 4 hours?
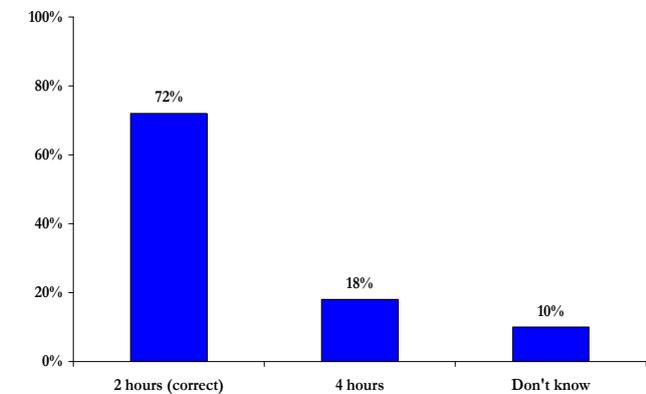
Base: Cools cooked food for later re-use
Yr 2007 = 780

Figure 20: Temperature and time for further cooling cooked food

Q31(2007): Does cooked food need to be cooled from 21° to 5° Celsius within 4 hours or 6 hours?
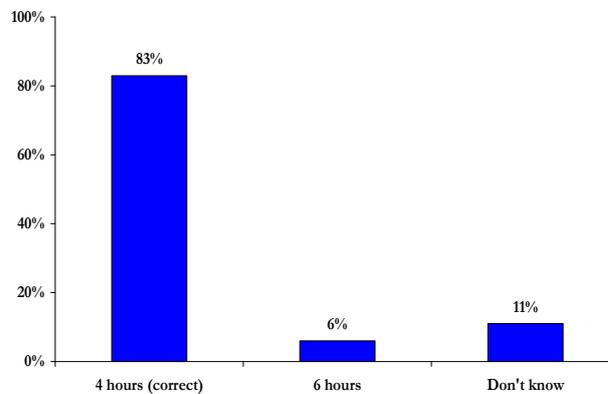
Base: Cools cooked food for later re-use
Yr 2007 = 780

A comparison with the equivalent questions from the 2001 survey showed a significant increase in knowledge in regard to cooling cooked food safely. However, it should be noted that the 2001 question was asked as a true or false question – *"Cooked food must be cooled from 60°C – 21°C within two hours."*

In 2001, half (47%) correctly identified that cooked food should be cooled from 60°C – 21°C within two hours, increasing to seven in ten (72%) in 2007 (Figure 21).

In 2001, half (51%) correctly identified that cooked food should be cooled from 21°C – 5°C within four hours, increasing to over four in five (83%) in 2007 (Figure 22).

Figure 21: Temperature and time for safely cooling cooked food

Q12b (2001): Cooked food must be cooled from 60° to 21°Celsius within 2 hours?
Cooked food must be cooled from 60° to 21°Celsius within 4 hours?
Q30 (2007): Does cooked food need to be cooled from 60° to 21°Celsius within 2 hours or 4 hours?
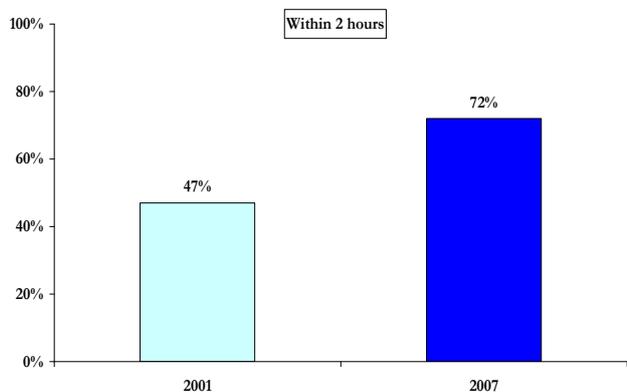
Base: Cools cooked food for later reuse
Yr 2001 = 375 Yr 2007 =780

Figure 22: Temperature and time for further cooling cooked food

Q12b (2001): Cooked food must be cooled from 21° to 5°Celsius within 4 hours?
Cooked food must be cooled from 21° to 5°Celsius within 6 hours?
Q31 (2007): Does cooked food need to be cooled from 21° to 5° Celsius within 4 hours or 6 hours?
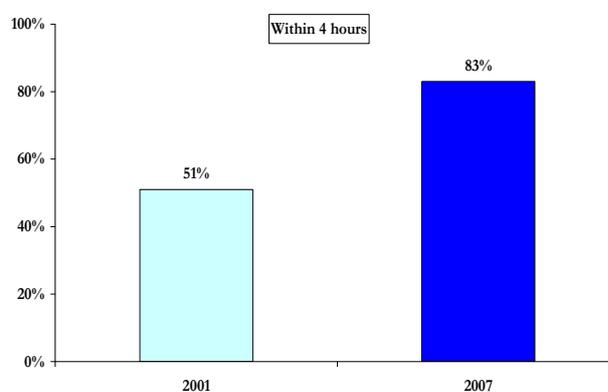
Base: Cools cooked food for later reuse
Yr 2001 = 375 Yr 2007 =780

All businesses that cook food and cool it for later use were asked to respond true or false on whether large amounts of cooked food should be placed in small containers and put in a cool room or refrigerator for cooling. Over eight in ten businesses (83%) answered that this was true, an increase of 12% from 2001 (71%) (Figure 23).

Figure 23: Safely cooling large amount of cooked food

Q12b (2001): Large amounts of cooked food should be placed in small containers and put in a cool room or refrigerator for cooling.

Q32 (2007): Large amounts of cooked food should be portioned and placed in small containers and put in a cool room or refrigerator for cooling.

Base: Cools cooked food for later reuse
        Yr 2001 = 375   Yr 2007 = 780
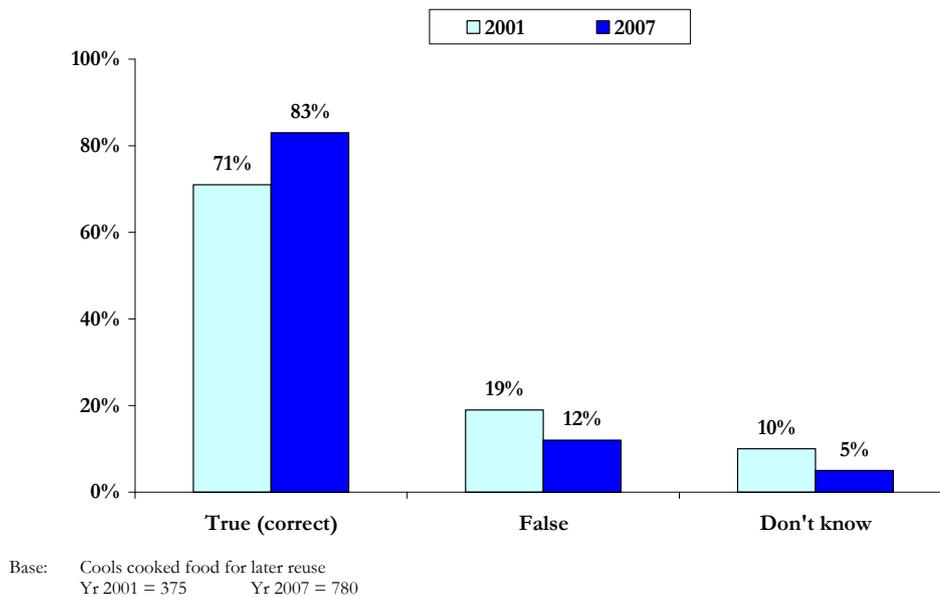
Knowledge of cooling timeframes for cooked food by staff knowledge and presence of food safety program

Feeling informed about food safety regulations, having a food safety program and providing staff training about food safety did not have a large impact on the level of knowledge concerning the correct cooling timeframes for cooked food as similar results were achieved when compared to their respective counterparts.

The one exception was that those informed of food safety regulations were more likely to know that cooked food needed to be cooled from 21°C – 5°C within four hours (85%) compared to those who did not feel informed (73%) (Table 14).

One in five (19%) of those who felt informed about food safety regulations and those who had a food safety program incorrectly indicated that cooked food needed to be cooled from 60°C – 21°C within four hours.

Table 14: Cooling cooked food by staff knowledge and presence of food safety program							
	Informed of food safety regulations		Staff training		Food safety program		
	Total informed (685) % A	Not informed (93) % B	Yes (713) % C	No (67) % D	Yes (550) % E	No (230) % F	Total (780) % G
Q30 (2007): Does cooked food need to be cooled from 60° to 21°Celsius within 2 hours or 4 hours?							
2 hours (correct)	73	69	72	75	73	71	72
4 hours	19	12	18	15	19^F	13	18
Don't know	9	19^A	10	10	8	16^E	10
Q31(2007): Does cooked food need to be cooled from 21° to 5° Celsius within 4 hours or 6 hours?							
4 hours (correct)	85^B	73	83	85	83	83	83
6 hours	6	6	6	4	8^F	3	6
Don't know	9	20^A	11	10	9	14^E	11
Q32 (2007): Large amounts of cooked food should be portioned and placed in small containers and put in a cool room or refrigerator for cooling.							
True (correct)	83	81	83	81	84	80	83
False	12	12	12	12	12	11	12
Don't know	5	8	5	7	4	8^E	5

Base: Cools cooked food for later reuse

Knowledge of cooling timeframes for cooked food by location

There was no significant difference in the level of knowledge of the correct cooling time requirements for cooked food by State/Territory.

Fewer Western Australian businesses indicated that it was true that large amounts of cooked food should be placed in small containers and put in a cool room or refrigerator for cooling (74%) than other States and compared to the Australian average (83%).

6.1.9 *Holding food at room temperature*

Potentially hazardous food can be safely held at room temperature for a limited amount of time because pathogenic bacteria may multiply rapidly at these temperatures. Advice on the maximum time that potentially hazardous food can be outside temperature control is provided by FSANZ in *Safe Food Australia: A Guide to the Food Safety Standards[8]*. It says that if potentially hazardous food, that has been correctly cooked and cooled, and has been at temperatures between 5°C and 60°C:

> ➢ for a total of less than 2 hours, must be refrigerated or used immediately;
>
> ➢ for a total of longer than 2 hours but less than 4 hours, must be used immediately; or
>
> ➢ for a total of 4 hours or longer, must be thrown out.

Businesses that identified that they held hot food or cooked food and cool it for later use were questioned on how long foods can safely be left at room temperature. As the answers needed to be clearly related to potentially hazardous foods (and not to other foods e.g. some hot desserts), the question specified 'safely leaving cooked chicken and casseroles'. Businesses were given time intervals and asked to give the correct time that cooked chicken and casseroles could be left at room temperature.

Overall, 76% of business correctly answered that they could leave cooked chicken and casseroles intended for serving hot for up to two to four hours at room temperature. Three percent thought that they could keep the food for longer and 21% did not know.

The question was slightly different in 2001:

> *"How long can potentially hazardous food that is meant to be served hot be left at room temperature and still be safe? For example, how long can you safely leave lasagne or cooked rice at room temperature?"*

Nevertheless, fewer business in 2007 (76%) compared to 2001 (82%) answered that the food could be safely left for up to two to four hours.

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[8] Safe Food Australia is available on the FSANZ website www.foodstandards.gov.au

Figure 24: Safely leaving potentially hazardous food at room temperature

Q13 (2001): How long can potentially hazardous food that is meant to be served hot be left at room temperature and still be safe? For example, how long can you safely leave lasagne or cooked rice at room temperature?

Q34 (2007): How long can you safely leave cooked chicken or casseroles that are meant to be served hot at room temperature?

Base: Yr 2001: Handles RTE food and holds hot food or cools cooked food for re-use = 367
         Yr 2007: Holds hot food or cools cooked food for re-use = 1421
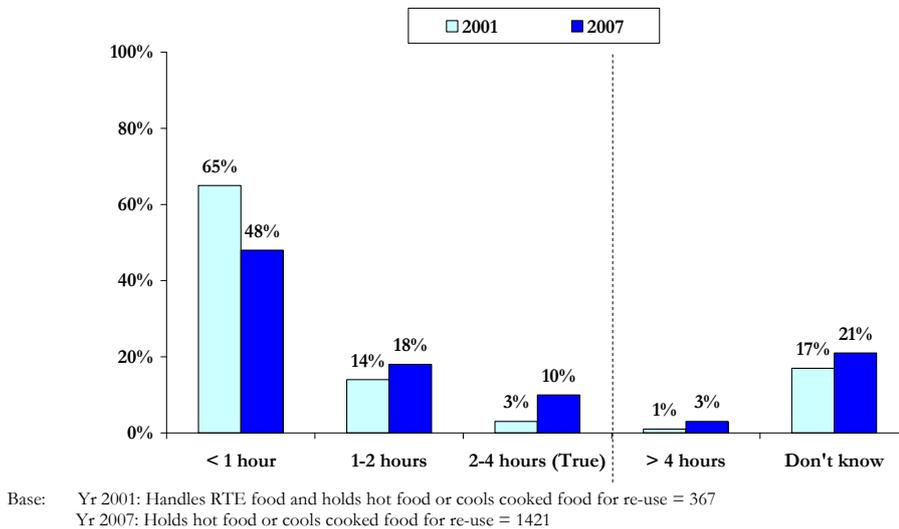
Businesses in Victoria were more likely to identify the correct time of up to two to four hours for safely leaving potentially hazardous food at room temperature (83%) compared to the Australian average (76%). A lower level of knowledge was evident in Queensland (70%) compared to the Australian average – the incidence was lower in the Australian Capital Territory (69%) although this was not a statistically significant difference (Figure 25).

Figure 25: Safely leaving potentially hazardous food at room temperature for up to two to four hours by location

Q34 (2007): How long can you safely leave cooked chicken or casseroles that are meant to be served hot at room temperature?

Base: Holds hot food or cools cooked food for re-use (2007 Total = 1,421)
         NSW = 221   VIC = 240   QLD = 275   SA = 246   WA = 260   TAS = 56   NT = 62   ACT = 61
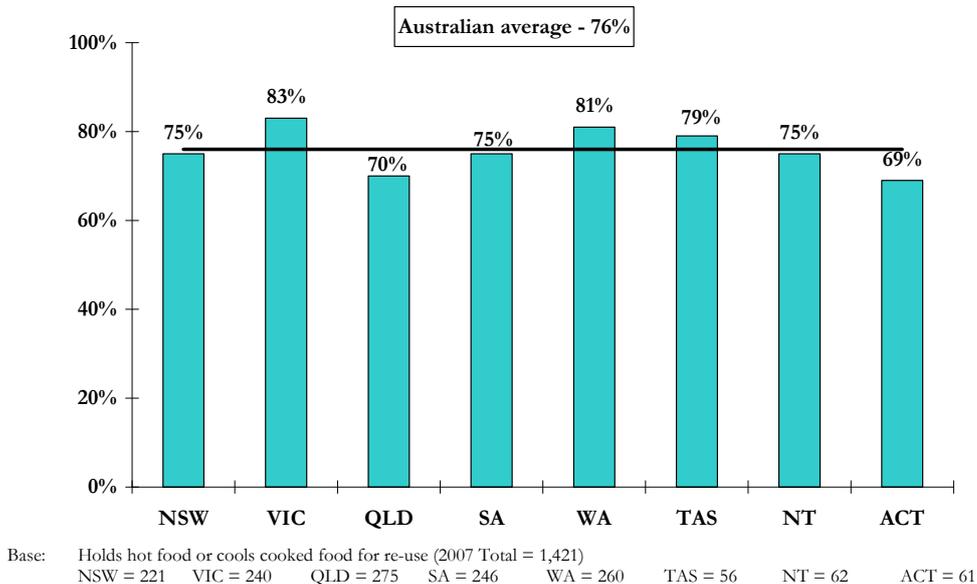
6.1.10　Ready-to-eat foods requiring refrigeration

Businesses involved in preparing ready-to-eat foods were read out a list of ready-to-eat foods (cooked rice, peanut butter and beef curry) and asked if they needed to be kept refrigerated in order to remain safe.

Nearly all businesses knew that they needed to keep beef curry (94%) and cooked rice (91%) refrigerated for use the next day. This represented a significant increase from the 2001 results of 85% for beef curry and 79% for cooked rice (Figure 26).

Four in ten businesses (41%) said that peanut butter needed to be kept refrigerated which was actually not necessary. This represents an increase from 33% in 2001.

Figure 26: Ready-to-eat foods requiring refrigeration

Q14 (2001): Which of the following foods need to be kept refrigerated to ensure they remain safe?

Q33 (2007): Which of the following foods need to be kept refrigerated to ensure they remain safe for use the next day?

Base:　Prepare ready-to-eat food
　　　　Yr 2001 = 568　　　　Yr 2007 = 1,187
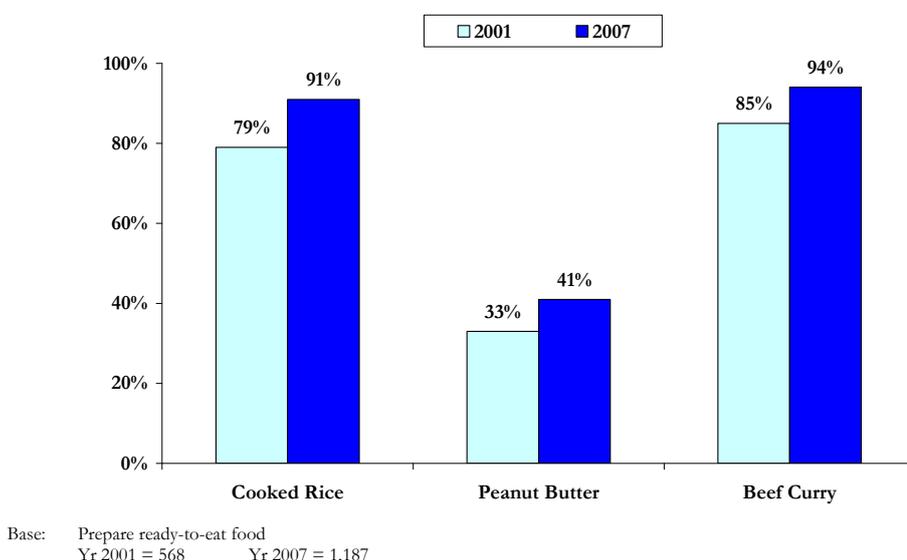
Knowledge of ready-to-eat foods requiring refrigeration by location

Northern Territory businesses were less likely to indicate that beef curry (86%) and cooked rice (83%) should be kept refrigerated for use the next day compared to the Australian average (94% and 91% respectively).

Fewer Victorian businesses indicated that peanut butter needed to be kept refrigerated to remain safe (30%) and Northern Territory businesses were more likely to think that peanut butter needed to be kept refrigerated (56%) compared to the Australian average (41%). This may reflect practices associated with ambient temperatures and food maintaining its quality.

6.2   Protecting food from contamination

Protecting food from contamination by staff, raw food and dirty equipment is a key food handling practice.

Businesses were asked two questions aimed at providing some information on current practices and on knowledge:

> ➢ Whether employees wore gloves to handle food. Disposable gloves are sometimes used by businesses to prevent their staff transmitting micro-organisms from hands. This gives an indication of the extent to which businesses claim to use gloves but could not, in a telephone survey, give any indication of whether the use was appropriate. However, it could be cross checked against other responses by the business for example, against those that provided staff training and whether the same gloves can be used for different food handling tasks.

> ➢ A series of statements about contamination that they were asked to identify as true or false.

6.2.1   Food handling

Most businesses (85%) reported their employees wore gloves when handling food, an increase of 11% from 74% in 2001 (Figure 27).

Figure 27: Gloves and food handling

Q20 (2001): Do employees wear gloves when handling food?

Q40 (2007): Do employees at your business wear disposable gloves when handling food?
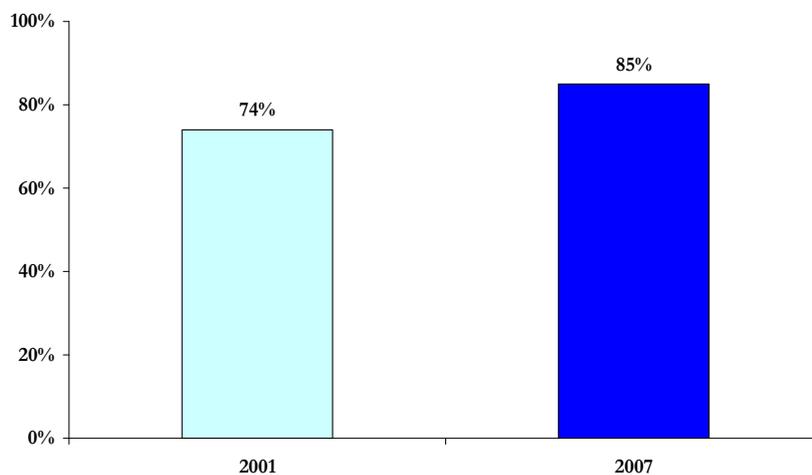
Base: All respondents
Yr 2001 = 1,200   Yr 2007 = 2,300

A series of true/false statements about general knowledge of safe food handling practices were asked of all the surveyed businesses. It is relatively challenging to devise questions that do not automatically lead to a correct response and which are a mix of "true" and "false". The questions were:

- the same pair of disposable gloves can be used to unpack raw vegetables and to slice cold meat (False);
- the same disposable gloves can be used to clean and wipe tables as well as unstacking the dishwasher (False);
- the same equipment can be used to prepare raw meat and raw vegetables that are going to be cooked together (True);
- in a cool room, raw vegetables can be stored above uncovered cooked food (False);
- a knife can be cleaned by wiping with a damp sponge (False);
- it is safe for food handlers to directly touch bread (False);
- it is safe for food handlers to directly touch ham (False); and
- after each use, piping bags should be cleaned and sanitised (True).

Of the eight statements, five in ten (50%) respondents correctly answered seven or eight of the statements; another four in ten (44%) correctly answered five or six of the statements; and a minority (5%) answered fewer than five of the eight statements correctly.

In general, high risk businesses always displayed equal to or greater knowledge than their low risk counterparts, that is, they were generally more likely to answer each question correctly.

Nearly all businesses (97%) were aware not to use the same pair of gloves to unpack raw vegetables and to slice cold meat. Almost as many (94%) were aware not to use the same pair of gloves to clean tables and to unstack the dishwasher (Figure 28). These results were almost identical among those business who had staff that work gloves (98% and 94% respectively).

Figure 28: Wearing disposable gloves for multiple food handling tasks

Please answer true or false to the following…

Q21a (2001):   The same gloves can be used to unpack raw vegetables and to slice cold meat.

Q41a (2007):   The same pair of disposable gloves can be used to unpack raw vegetables and to slice cold meat.

Q21a (2001):   The same glove can be used to clean and wipe tables as well as unstacking the dishwasher.

Q41b (2007):   The same pair of disposable gloves can be used to clean and wipe tables as well as unstacking the dishwasher.
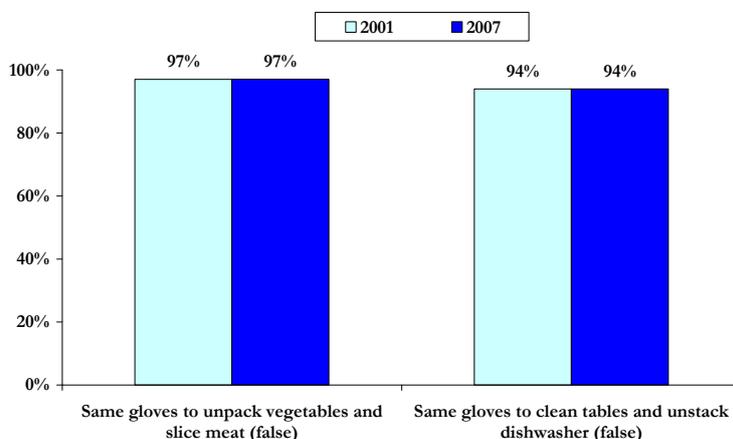
Base: All who answered question

Yr 2001 = (a) 1,112, (b) 1,078   Yr 2007 = 2,300

> The vast majority of respondents were knowledgeable that they should not wear disposable gloves for multiple tasks.

Raw vegetables and meat that are to be cooked together can be prepared on the same chopping board as the cooking process will control any pathogens. Less than one in ten (9%) businesses answered correctly that they could use the same equipment to prepare meat and raw vegetables that were going to be cooked together (Figure 29) possibly reflecting a conservative approach to food safety.

Almost two in ten businesses (18%) incorrectly believed raw vegetables *could* be safely stored in a cool room on a shelf above uncovered cooked food. This represented an increase from 2001 when only 12% believed it was safe to store raw vegetables above uncovered cooked food.

Figure 29: Handling raw vegetables and cooked food

Please answer true or false to the following…

Q21a (2001): The same equipment can be used to prepare raw meat and raw vegetables that are going to be cooked together.

Q41c (2007): The same equipment can be used to prepare raw meat and raw vegetables that are going to be cooked together.

Q21a (2001): Thinking about storing vegetables in the cool room, raw vegetables can be stored above uncovered cooked food.

Q41d (2007): In a cool room, raw vegetables can be safely stored above uncovered cooked food.
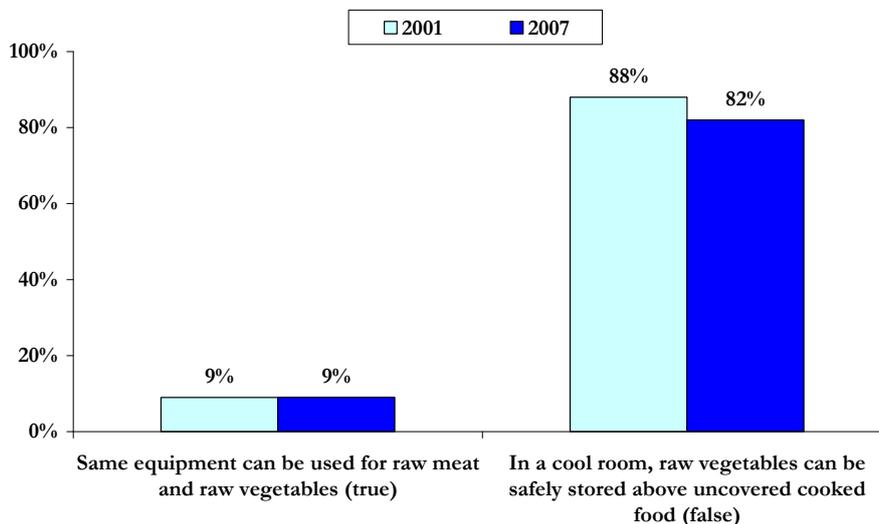
Base: All who answered question
        Yr 2001 = (c) 1,059, (d) 1,095   Yr 2007 = 2,300

> There are some gaps in knowledge and understanding regarding safe handling of food.

The final few true/false statements addressed contamination of food directly by handlers touching or cleaning food implements.

A substantial three in ten (28%) businesses surveyed incorrectly believed (or did not know) it was safe for food handlers to directly touch bread (Figure 30) and 24% of those whose staff wore gloves. High risk businesses were more likely to indicate that it is not safe for food handlers to directly touch bread (76%) compared to their low risk counterparts (70%).

One in seven (14%) incorrectly believed it was safe to directly touch ham and 11% of those whose staff wore gloves – this represented an increase from 2001 (10%).

Nearly all businesses knew that a knife could not be cleaned simply by wiping with a damp sponge (95%).

Nine in ten (90%) were aware that piping bags should be cleaned and sanitised after each use. Only 3% believed the opposite while 7% did not know.

Figure 30: Food handling – touching food and cleaning utensils

Please answer true or false to the following…
Q21a (2001): A knife can be cleaned by wiping with a damp sponge.
Q41e (2007): A knife can be cleaned by wiping with a damp sponge.
Q21a (2001): It is safe for food handlers to directly touch bread.
Q41f (2007): It is safe for food handlers to directly touch bread.
Q21a (2001): It is safe for food handlers to directly touch ham.
Q41g (2007): It is safe for food handlers to directly touch ham.
Q41h (2007): After each use, piping bags should be cleaned and sanitised.
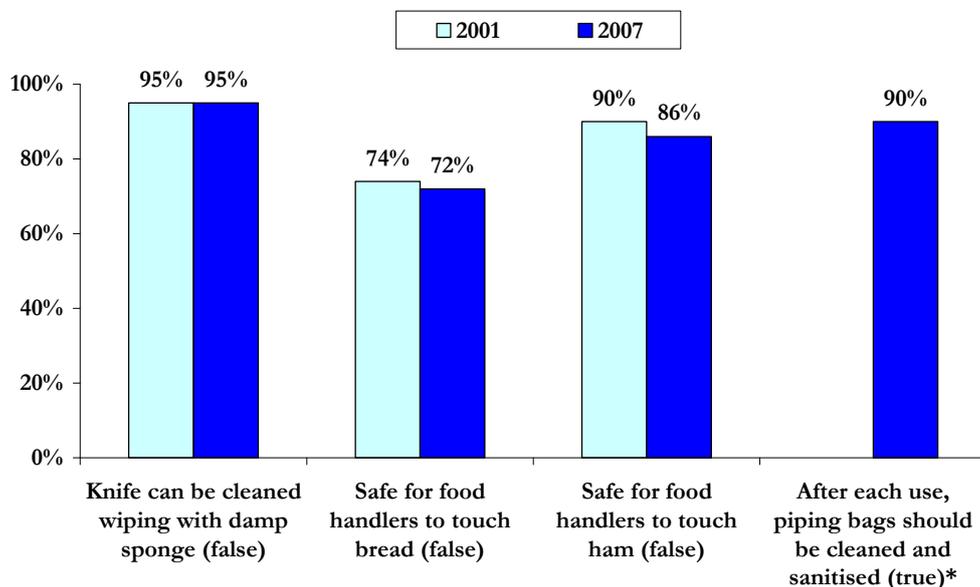
Base: All who answered question
        Yr 2001 = (e) 1,166, (f) 1,112 (g) 1,134 (h) n.a.   Yr 2007 = 2,300
        * not asked in 2001

A notable three in ten surveyed incorrectly believed it safe for food handlers to directly touch bread and one in seven thought it safe to directly touch ham.

6.3   Personal hygiene and staff illness

There are requirements in the Food Safety Standards to control the transmission of illness through food from food handlers who are ill, have symptoms or otherwise might transmit the pathogens they are, or may be, carrying.

Staff that are unwell with an illness that may be food borne, or who may be a carrier of such an illness, can transmit that illness through food if they are at work. For example, persons who present at work with a symptom such as diarrhoea could have an illness that could be transmitted through food. They pose a risk of transmitting that illness if they handle food, eating and drinking utensils or equipment that comes in contact with food and such persons should not be handling food.

6.3.1   Staff illness

Without prompting, businesses were asked to name which food preparation tasks an employee with diarrhoea should avoid. There were two main responses: *the employee should not be at work at all* (53%); and *the employee should avoid anything to do with food or food implements* (49%) (Figure 31).

In 2001, a prompted question was asked and as a consequence the results cannot be compared.

Figure 31: Safe food handling and staff illness

Q42 (2007): If you have an employee with diarrhoea, which food preparation tasks should they avoid?
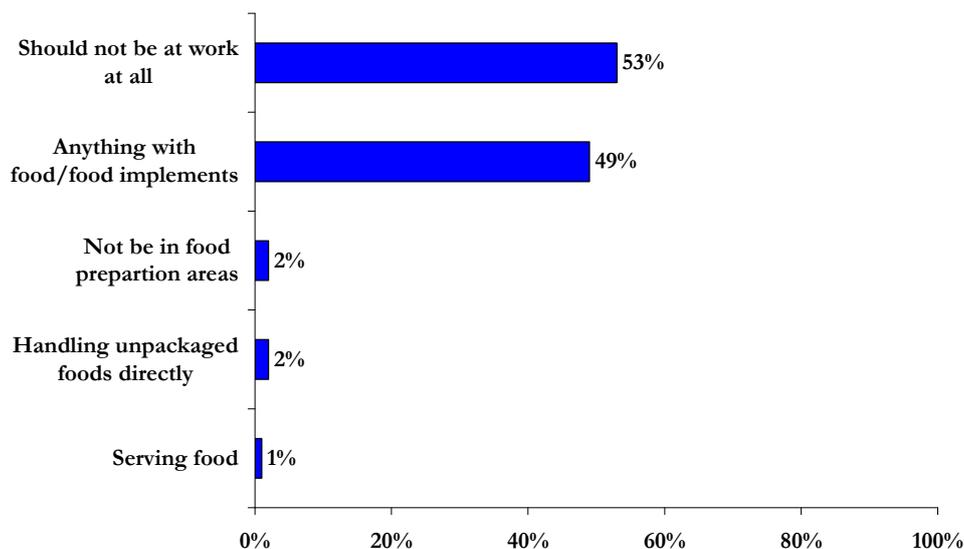
Base: All respondents (Yr 2007 = 2,300)
Note: Multiple response possible

6.4   Cleaning and sanitation

Businesses are required under the Food Safety Standards to ensure that they use only eating and drinking utensils and food contact surfaces that are clean and sanitary. Clean and sanitised eating and drinking utensils, as well as equipment that is in contact with food, minimises the risk of transferring pathogenic micro-organisms to food and to other users of the utensils. Generally, using a properly working dishwasher is a more effective way of cleaning and sanitising equipment than washing manually. This is because dishwashers make use of more effective cleaning chemicals and very hot water for rinsing. In addition, many models include drying cycles.

Information was sought on how businesses cleaned and sanitised their eating and drinking utensils and equipment used for food preparation.

6.4.1   Washing containers and utensils

Businesses were asked whether they used dishwashers or whether they washed equipment manually by hand. Those with dishwashers were also asked whether they knew the temperature of the final rinse of the dishwasher.

Most businesses washed at least some of their containers and utensils by hand (82%) and just under half (47%) used a dishwasher at some time. Half washed by hand *only* (52%) which represented a decrease from 2001 where six in ten (63%) were only hand washing (Figure 32). Nearly two in ten (17%) *only* used a dishwasher compared with one in ten (12%) in 2001.

Figure 32: Methods of washing containers and utensils

Q15 (2001): When washing containers and utensils used for food preparation or eating, do you use a dishwasher, do you hand wash, or both?

Q35 (2007): When washing containers and utensils used for food preparation or eating, do you use a dishwasher, do you hand wash, or both?

Base: All who answered question
         Yr 2001 = 1,135   Yr 2007 = 2,300
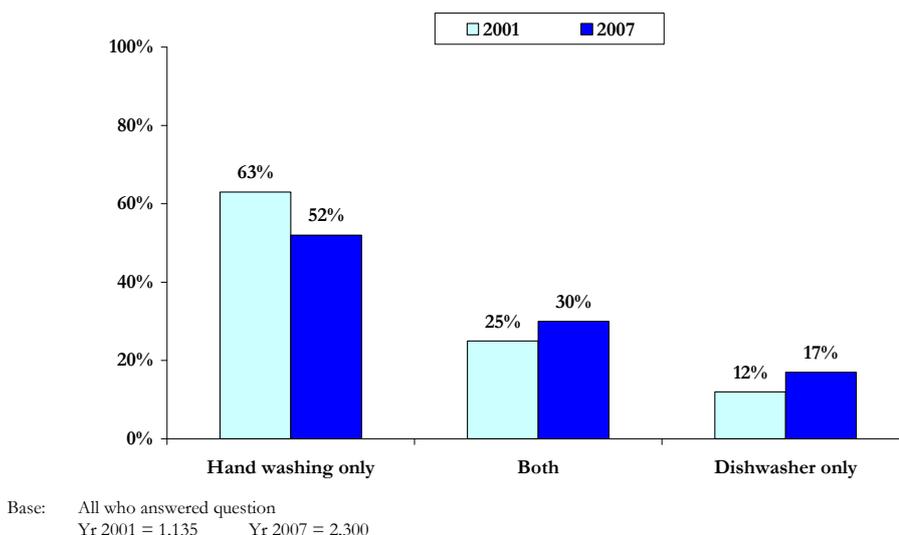
Dishwashers were more frequently used to wash containers and utensils in 2007 compared to 2001.

Of business that used a dishwasher, 60% knew that the temperature of the final rinse in their dishwasher should be between 71°C and 80°C (13%) or higher than 80°C (47%) (Figure 33). Another 13% said it should be lower than 71°C which generally would be too low to kill bacteria on utensils. A quarter (26%) said they didn't know or the machine was calibrated. A similar proportion of businesses in 2001 (56%) and 2007 (60%) were aware that the final rinse for dishwashers should 71° or more (Note in 2001, the question was "*What is the temperature of the final rinse in your dishwasher?*").

Among businesses that hand washed utensils, 27% knew that the temperature of hot water that would kill bacteria should be between 71°C and 80°C (11%) or higher than 80°C (16%) (Figure 34). Over four in ten (42%) didn't know what temperature of hot water would kill bacteria. One third of business (31%) incorrectly reported hand washing temperatures below 71°C. A lower proportion of businesses in 2007 (27%) compared to 2001 (38%) correctly answered that hot water needs to be 71°C or more to kill bacteria.

Figure 33: Temperature of final rinse in dishwasher
Q16 (2001): What is the temperature of the final rinse in your dishwasher?
Q36 (2007): What should the temperature of the final rinse in your dishwasher be?

Figure 34: Hand washing and food safety
Q17 (2001): When hand washing, what temperature of hot water will kill bacteria on food preparation utensils?
Q37 (2007): When washing equipment by hand, what temperature of hot water will kill bacteria on food preparation utensils?
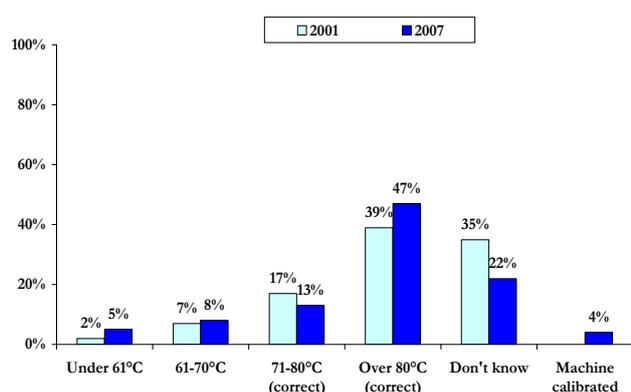
Base: Business uses dishwasher
Yr 2001 =418   Yr 2007 = 1,076
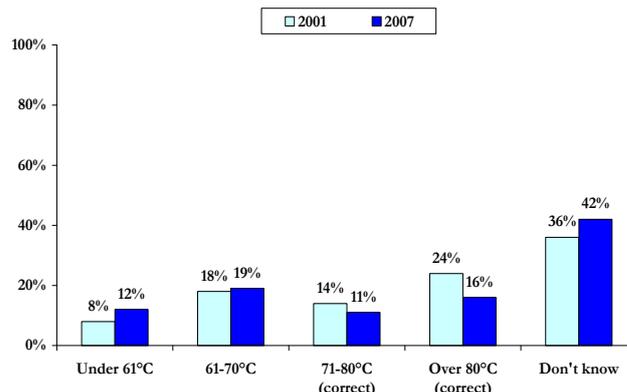
Base: Business hand washes
Yr 2001 = 992   Yr 2007 =1,881

> Three in five businesses with a dishwasher were aware that the temperature of the final rinse should be at least 71°C.
> One in four businesses that hand washed knew that the hot water temperature needed to be at least 71°C to kill bacteria on food preparation utensils.

6.4.2   Chemical sanitisers

If a business cleans and sanitises eating and drinking utensils and food contact surfaces by hand it can use either a chemical sanitiser to sanitise or hot water. Businesses that prepared ready-to-eat food were asked how often they *should* use a chemical sanitiser after washing cups, plates and eating utensils. The results are not directly comparable to 2001 as the question was phrased in terms of actual practice, that is, how often *do* you use a chemical sanitiser.

Few (8%) businesses indicated that you should *never* use a chemical sanitiser (Figure 35) after washing cups, plates and eating utensils (down from 24% in 2001 which reflected actual practice). Over three in four (76%) said that you should *always* use chemical sanitisers (up from 64%) and a further 9% felt that they should be used *sometimes*. Similar responses were obtained even among those businesses that prepared ready-to-eat food and who only hand washed containers and utensils (these business should always use a chemical sanitiser): 76% said that they should *always* use chemical sanitisers, 10% *sometimes*, 6% *never*; and 8% were uncertain.

Businesses more likely to indicate that chemical sanitisers should *always* be used included:

➢ high (84%) and medium (79%) risk businesses compared with low risk businesses (74%);

➢ large businesses (87%) compared to small (75%);

➢ metropolitan (79%) than non-metropolitan businesses (74%);

➢ businesses informed about food safety regulations (78%) compared to those who were not informed (63%);

➢ those who provided staff training about food safety (78%) compared to those who did not (63%); and

➢ businesses that had a food safety program (83%) compared to those that did not have a Plan (64%).

There were no significant differences by State/Territory.

Figure 35: Use chemical sanitiser

Q18 (2001): Do you use a chemical sanitiser for washing cups, plates and eating utensils?

Q38 (2007): How often should you use a chemical sanitiser after washing cups, plates and eating utensils?

Base: Prepare ready-to-eat food
         Yr 2001 = 548   Yr 2007 = 1,187
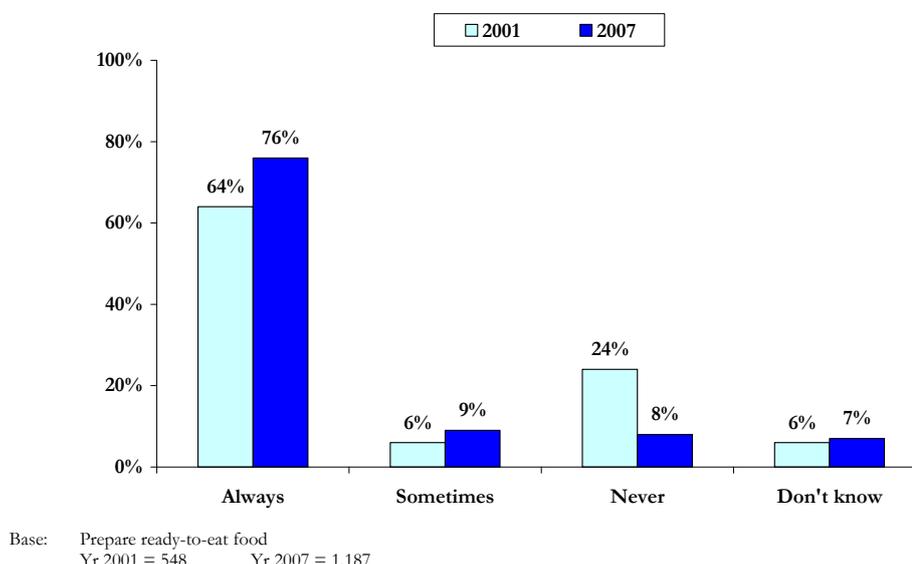
Regardless of whether the business did or did not use a chemical sanitiser, nearly two in three (64%) businesses correctly believed that not all chemical sanitisers should be mixed with hot water (up from 53% in 2001) (Figure 36). Three in four businesses (73%) correctly knew that detergents would not kill micro-organisms and nearly all businesses (96%) knew that a dirty chopping board must be washed before being sanitised.

Half (50%) of the respondents provided the correct answer to all three statements compared to one in three (36%) in 2001.

Figure 36: Washing and sanitising

Q19 (2001): All chemical sanitisers should be mixed with hot water. True or false?

Q39a (2007): All chemical sanitisers should be mixed with hot water. True or false?

Q19 (2001): Detergent kills micro-organisms. True or false?

Q39b (2007): Detergent kills micro-organisms. True or false?

Q19 (2001): A dirty chopping board must be washed before being sanitised. True or false?

Q39c (2007): A dirty chopping board must be washed before being sanitised. True or false?
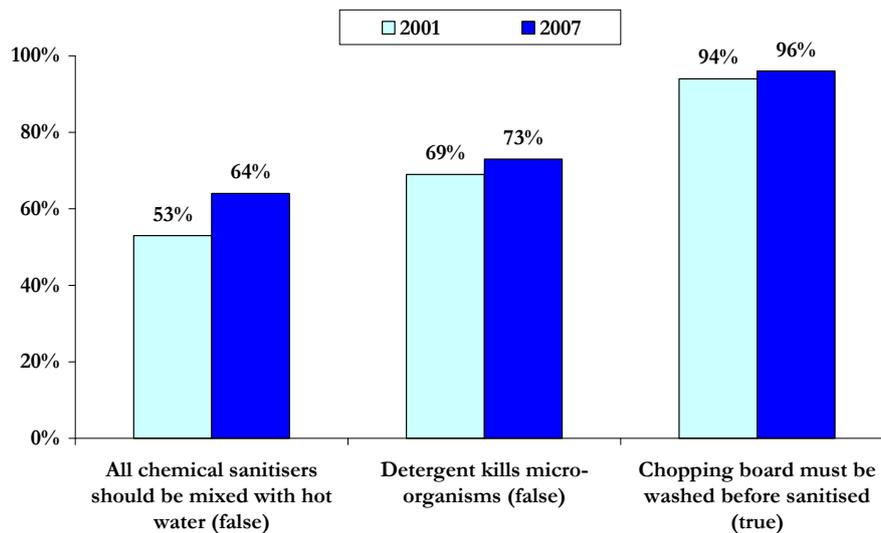
Base: All who answered question
Yr 2001 = (a) 1,141, (b) 1,180 (c) 1,145   Yr 2007 = 2,300

6.5   Staff training, food safety information and food safety programs

The Food Safety Standards require food businesses to ensure that their staff have skills and knowledge in food safety and food hygiene matters relevant to the work carried out by the staff. The Standards do not specify how businesses must ensure that their staff have these skills and knowledge. There are many alternatives that range from formal training courses to in-house on-the-job training. Businesses were asked whether they provided any staff training and the type of training provided.

It is important to acknowledge that all food businesses in Victoria are required to have a food safety program, part of which involves a Food Safety Supervisor being nominated with the skills and authority to ensure that all staff have sufficient skills and knowledge to provide safe food, including understanding and following the food safety program.

6.5.1   Staff training

In 2007, more businesses (89%) were providing food safety training to their staff compared with 74% in 2001 (Figure 37). Specific differences that appeared included:

> provision of staff training was directly proportional to the level of risk associated with the business, that is, businesses classified as having a high level of food safety risk more often provided staff training (95%) compared with medium (90%) or low risk businesses(85%);

> almost all large businesses (97%) provided staff training and fewer small businesses (88%);

> businesses who felt well informed about current food safety regulations more often provided staff training (91%) compared with those not well informed (75%); and

> businesses in Victoria were most likely to provide staff training (94%) and those in Western Australia least likely (84%).

Figure 37: Staff training

Q28a (2001): Do you provide staff training on handling food safely?

Q52 (2007): Is training about food safety provided to your staff?

Base: All respondents
       Yr 2001 = 1,200   Yr 2007 = 2,300
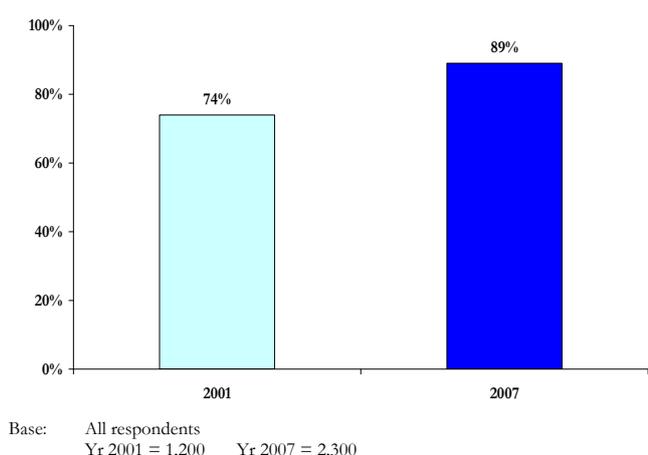
Figure 38: Staff training by location

Q52 (2007): Is training about food safety provided to your staff?

Base: All respondents (Yr 2007 = 2,300)
         NSW = 400   VIC = 400   QLD = 400   SA = 400
         WA = 400   TAS = 100   NT = 100   ACT = 100
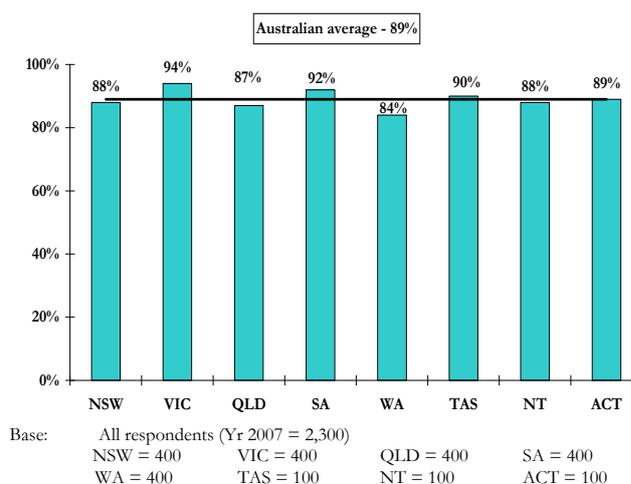
Four in five (80%) businesses that had staff training provided this at the workplace (similar to 2001 at 79%). This included informal/on the job training (57%), induction or workplace training programs (27%) and workplace training programs by the Food Safety Manager (22%) (Figure 39).

Four in ten businesses (39%) had external staff training programs (an increase from 28% in 2001):

> ➤ high risk businesses (45%) were the most likely to utilise external training programs compared with medium (38%) and low risk businesses (36%); and

> ➤ businesses in Victoria (54%) were also more likely to undertake external training programs than other States, particularly Western Australia (25%).

One in ten (11%) circulated brochures, pamphlets and put up posters and a minority (1%) undertook on-line training.

Figure 39: Type of staff training

Q53 (2007): What kind of training?
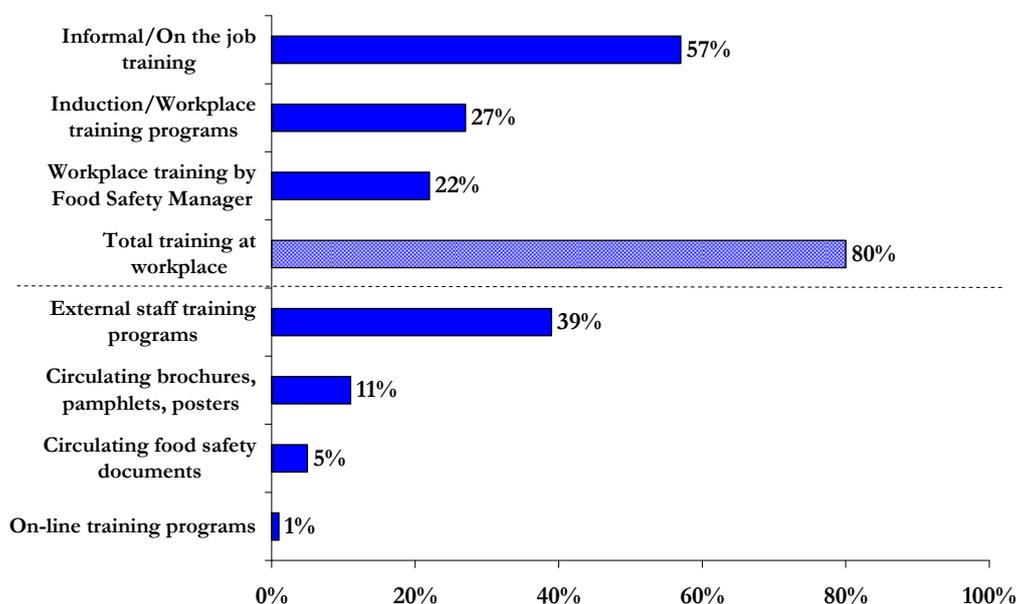
Base: Provide staff training (Yr 2007 = 2,046)
Note: Multiple response possible

6.5.2 *Food safety information*

The Commonwealth, State and local governments provide advice for food businesses on food safety matters and on food safety legislation. There is also information available from professional and industry organisations, in books and magazines, in other media sources and on the Internet.

It is useful for these organisations to know where food businesses primarily seek food safety information so that they can target the dissemination of the information most effectively.

Businesses were asked, without prompting, where they sought information, was food safety information easy to find and whether they were aware of the new Food Safety Standards.

The most frequently mentioned sources of information for food safety issues were the local council (51%) and State and Territory Health Departments (33%) (Figure 40):

> ➢ Local councils, EHOs and health inspectors were often mentioned by:
>> − those in Victoria (66%), South Australia (63%) and Tasmania (62%); and
>> − small businesses (53%) and those in non-metropolitan areas (54%).
>
> ➢ State Health Departments were often mentioned by:
>> − those in Queensland (39%) and the Northern Territory (48%).

The next most frequently mentioned source was an internal or external food safety auditor (13%) – an increase from 0% in 2001 – particularly among those in the Northern Territory (23%).

One in ten (11%) businesses would contact FSANZ – an increase from 2% in 2001:

> ➢ Victorian businesses were less likely to contact FSANZ (8%), particularly compared to businesses in the ACT (18%); and
> ➢ high risk businesses were more likely to contact FSANZ (17%) than medium (11%) and low risk (9%) businesses.

One in five (20%) would seek information from an industry association.

The Internet has grown as a source of food safety information from under 1% in 2001 to 17% in 2007 and was most often mentioned by those in Victoria (21%).

Small businesses were most likely to go the local council (53%), while large businesses were more likely to contact internal or external food safety auditors (31% compared to 10% for small businesses) and FSANZ (18% and 10% respectively).

Figure 40: Sources of food safety information

Q23 (2001): If you need information about food safety or hygiene, who would you contact?

Q43 (2007): If you need information about food safety or food hygiene, who would you contact?
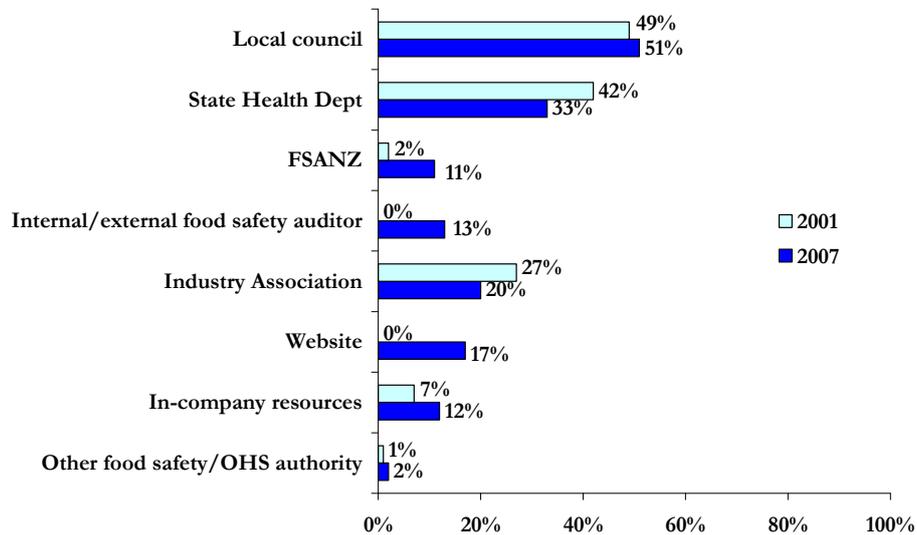
Base: All respondents
        Yr 2001 = 1,200   Yr 2007 = 2,300
Note: Multiple response possible

Most businesses found it easy to locate food safety information in 2007 (85%), particularly those in Victoria (89%) compared to the Australian average – the incidence was also higher in the Australian Capital Territory (89%) although this was not a statistically significant difference. This represented an increase in the ease of locating food safety information from 68% in 2001. Less than one in ten (8%) said they had trouble locating information about food safety (Figure 41).

Figure 41: Ease of locating food safety information

Q26 (2001): Do you find it easy to locate food safety information?

Q44 (2007): Do you find it easy to locate food safety information?
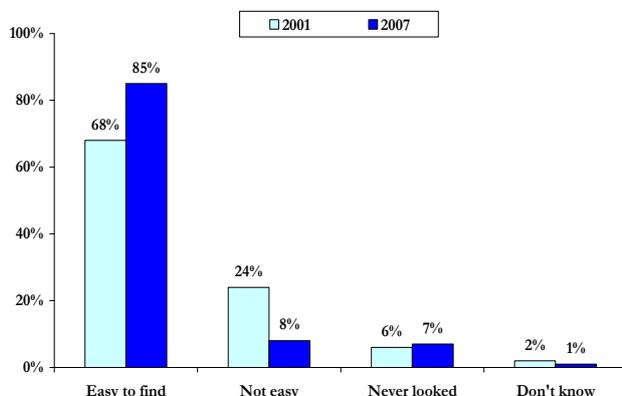
Base: All respondents
        Yr 2001 = 1,200   Yr 2007 = 2,300

Figure 42: Ease of locating food safety information by location

Q44 (2007): Do you find it easy to locate food safety information?
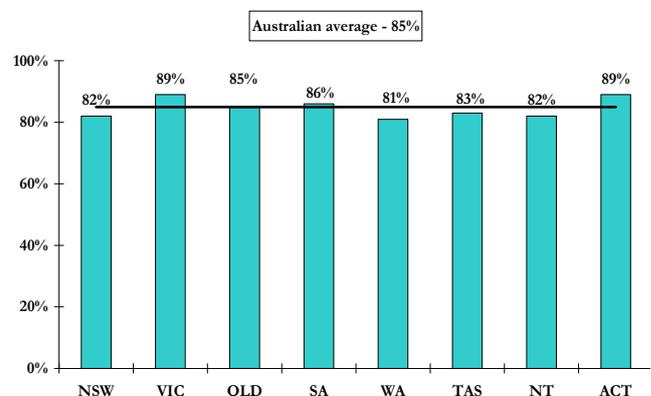
Base: All respondents (2007 = 2,300)
        NSW = 400   VIC = 400   QLD = 400   SA = 400
        WA = 400   TAS = 100   NT = 100   ACT = 100

6.5.3   *Awareness of current food safety regulations and Food Safety Standards*

Businesses were asked about how informed they felt about the food safety regulations.

More businesses felt informed, well informed or very well informed, about food safety regulations in 2007 compared to 2001 (86% vs 81%) (Figure 43). Businesses which were more likely to feel at least well informed on current food safety regulations included:

> ➢ high risk businesses (91%) compared to medium (86%) and low risk businesses (84%);

> ➢ large (91%) compared to small businesses (86%);

> ➢ those providing staff training (88%) compared to those not providing training (68%);

> ➢ businesses that had a food safety program (91%) compared to those that did not (76%); and

> ➢ Victorian and ACT businesses (92% each) particularly compared to those in Western Australia (82%).

Figure 43: Informed about current food safety regulations

Q24 (2001): How well informed do you feel about the current regulations about food safety?
Q45 (2007): How well informed do you feel about the current food safety regulations, would you say…

Base: All respondents
Yr 2001 = 1,200   Yr 2007 = 2,300
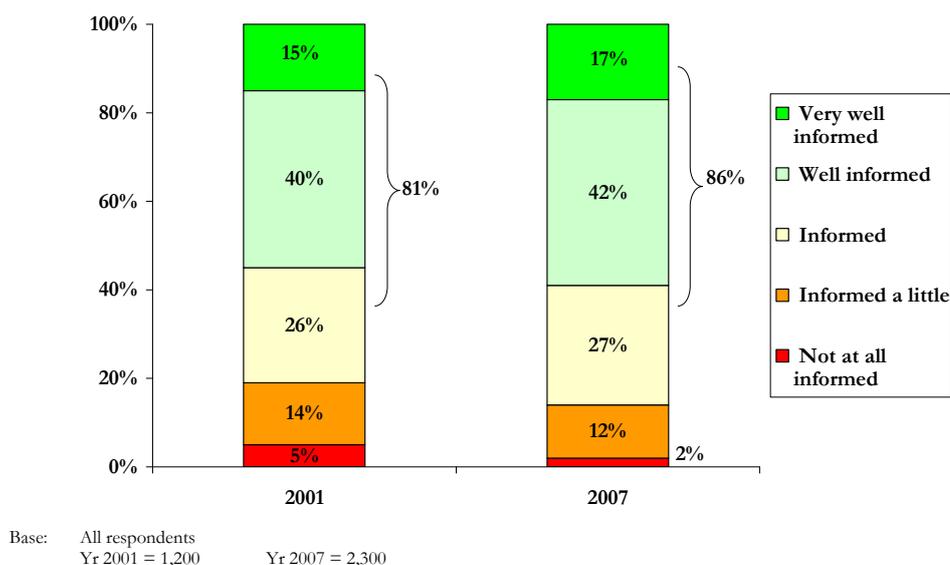
More food businesses felt informed about food safety regulations in 2007 compared to 2001.

Although 86% of businesses felt informed, well informed or very well informed, about current food safety regulations, four in ten (38%) businesses were not aware of the new Food Safety Standards brought in by the government between 2001 and 2003 (Figure 44):

> ➢ high risk (67%) and medium risk businesses (64%) were more likely to be aware of the Food Safety Standards than low risk businesses (57%); and

> ➢ businesses in Victoria were the most likely to be aware (77%), followed by South Australia (70%), particularly compared to Western Australia (51%) and Tasmania (52%).

Figure 44: Awareness of Food Safety Standards

Q25 (2001): Are you aware that the government is bringing in a new set of national food safety standards from February 2001?

Q46 (2007): Between 2001 and 2003, the government brought in a new set of national food safety standards. Do you know about these food safety standards?
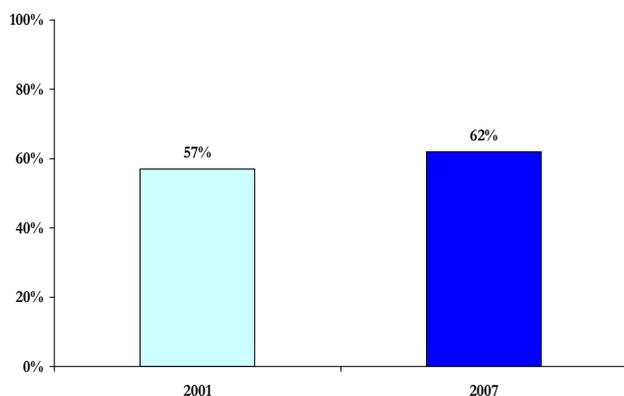
Base: All respondents
         Yr 2001 = 1,200   Yr 2007 = 2,300

Figure 45: Awareness of Food Safety Standards by location

Q46 (2007): Between 2001 and 2003, the government brought in a new set of national food safety standards. Do you know about these food safety standards?
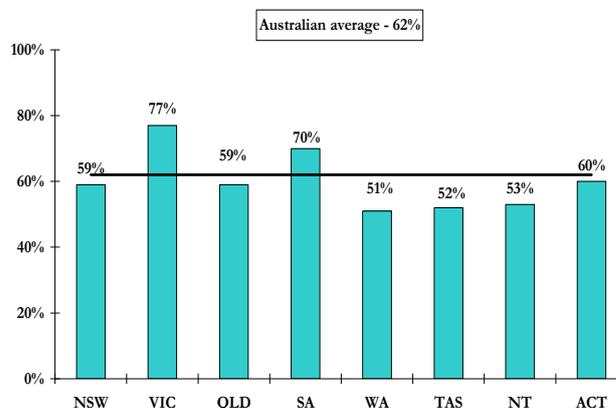
Base: All respondents (2007 = 2,300)
         NSW = 400   VIC = 400   QLD = 400   SA = 400
         WA = 400   TAS = 100   NT = 100   ACT = 100

6.5.4   *Change in practices as result of Food Safety Standards*

Businesses that indicated that they were aware of the Food Safety Standards were asked if they had changes their practices as a result of the introduction. Over half (55%) said they changed their practices. A third (33%) had not changed their practices and 11% did not know whether their business had changed their practices (Figure 46). Specific differences that appeared included:

➤ high risk businesses (62%) were more likely to have changed their practices than medium risk (54%) and low risk businesses (55%);

➤ businesses supplying foods to high risk groups (64%) were more likely to have changed their practices compared to those businesses not providing foods to high risk groups (52%);

➤ large businesses (64%) were more likely to have changed their practices than small (54%); and

➤ businesses with a food safety program (57%) were more likely to have changed practices than those without a food safety program (50%).

There were no significant differences in the proportion who had changed their practices as a result of the new Standards by State/Territory.

Figure 46: Change in food handling practices as a result of the Food Safety Standards

Q47 (2007): Have you changed any of the practices at your food business as a result of those new standards?
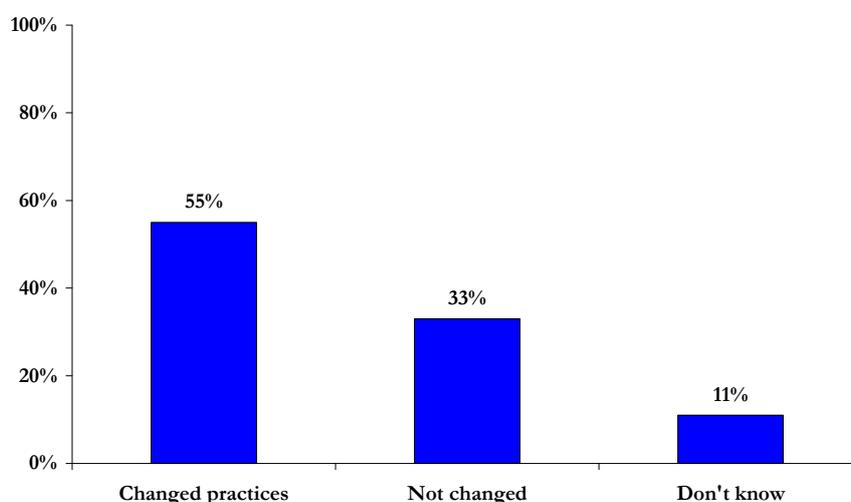
Base: Aware of new safety standards
Yr 2007 = 1,430

When prompted, the practices that had changed as a result of the new Food Safety Standards most frequently included: educational requirements for the staff (83%); the way the food is handled (75%); and equipment and surface washing practices (73%) (Figure 47). Other changes businesses had made included: purchased new equipment (65%); changed the way the food is stored (65%); altered their hand washing practices (62%); changed the way food is displayed (44%); and changed the way food is transported (38%).

Figure 47: Type of change to practices

Q48 (2007): What did you change?
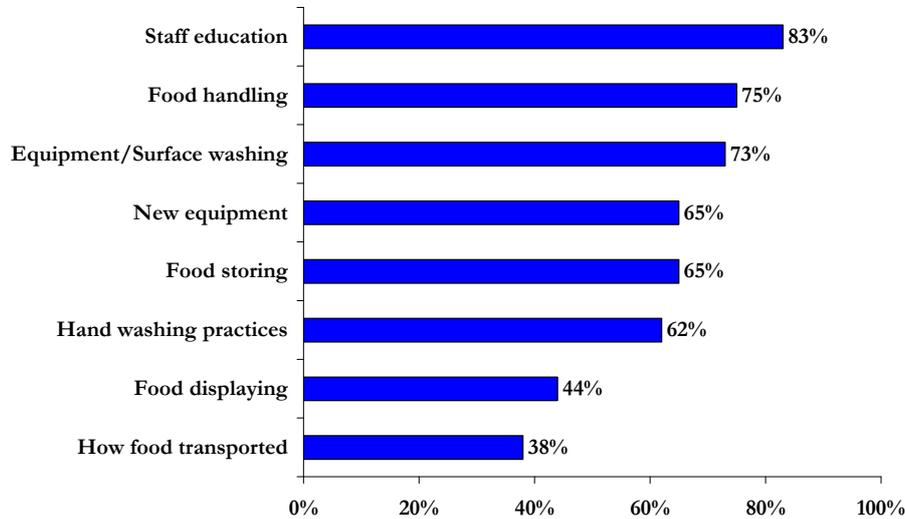
Base: Changed practices
         Yr 2007 = 790
Note: Multiple response possible

Without prompting, those who did not change their practices as a result of the new Food Safety Standards predominantly said they had not because they were already compliant (80%) (Figure 48). One in ten (11%) said they began their business after the 2003 changes and so did not need to change practices, a few said the Standards did not apply to them (4%) or were not practical (1%).

Figure 48: Reasons for not making change to practices

Q49 (2007): Why didn't you change your practices?
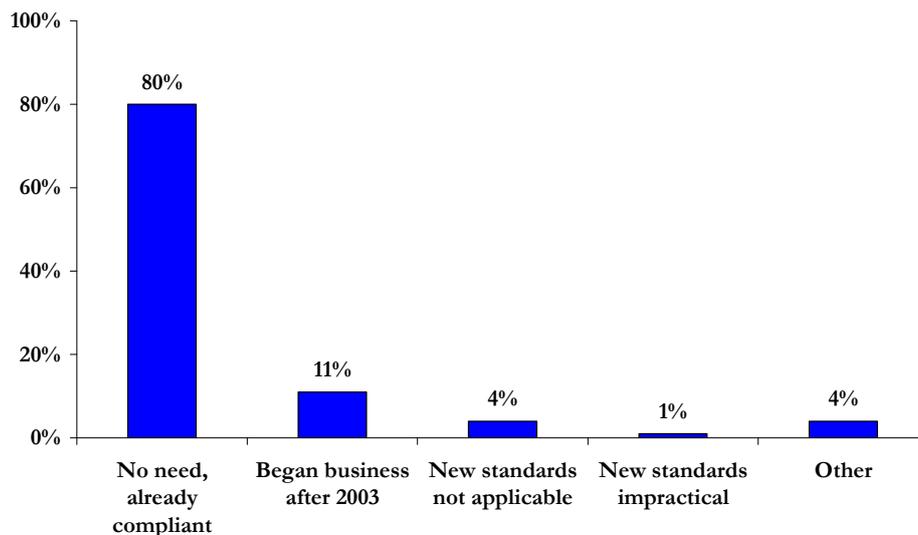
Base: Not changed practices
         Yr 2007 = 476

6.5.5   *Food safety programs*

Four in five (81%) food businesses had heard of food safety programs, food safety plans or HACCP (Hazard Analysis Critical Control Point) plans (Figure 49). Excluding Victorian businesses where food safety programs are mandatory, 78% of non-Victorian businesses had heard of food safety programs.

As expected awareness was highest in Victoria (94%), followed by South Australia (85%) and lowest in the Northern Territory (69%).

Other business types that were more likely to have heard of food safety programs, food safety plans or HACCP plans included:

➢ high (82%) and medium risk businesses (83%) compared to low risk (77%);

➢ large (91%) compared to small businesses (79%); and

➢ caterers (84%) compared to non-caterers (79%).

Figure 49: Awareness of food safety programs, food safety plans or HACCP plans

Q50 (2007): Have you heard of food safety programs, food safety plans or HACCP plans?

Base: All respondents
           Yr 2007 Total = 2,300   Yr 2007 exclusive VIC = 1,900
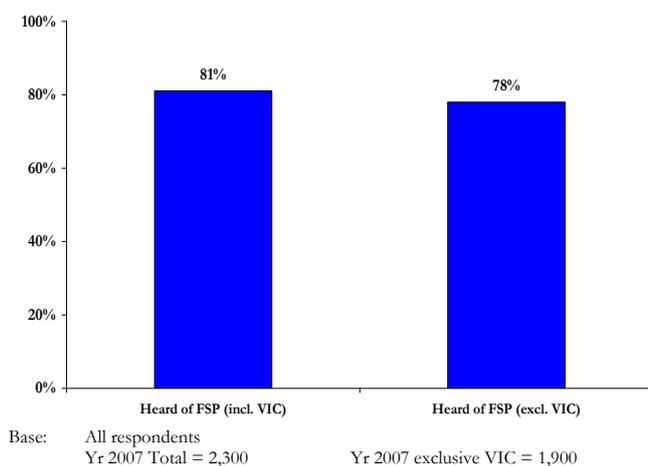
Figure 50: Awareness of food safety programs, food safety plans or HACCP plans by location

Q50 (2007): Have you heard of food safety programs, food safety plans or HACCP plans?

Base: All respondents (2007 = 2,300)
          NSW = 400   VIC = 400   QLD = 400   SA = 400
          WA = 400   TAS = 100   NT = 100   ACT = 100
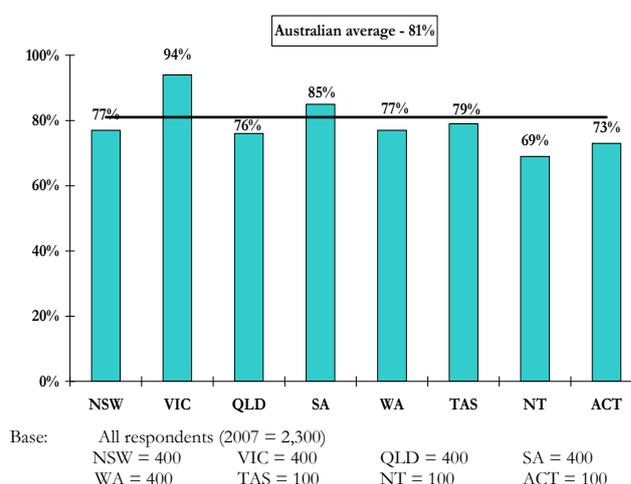
Those who were aware of these programs were asked if they had a food safety program, food safety program or HACCP plan in place. For comparability, the results are based on all respondents. Overall, 66% of Australian food businesses had a food safety program in place (81% of those who were aware of such programs) (Figure 51). Excluding Victorian businesses because of mandatory requirements, 60% of non-Victorian businesses had a food safety program in operation.

Almost all (91%) Victorian food businesses indicated that they had a food safety program (97% of those who were aware of such programs). Among all other States and Territories where such programs are not mandatory, between 51% (in the ACT) and 68% (in South Australia) of businesses indicated that they had a food safety program in place.

Based on all businesses, a similar proportion of caterers (65%) and non-caterers (66%) indicated that they currently had a food safety program.

Figure 51: Business has a food safety program, food safety plan or HACCP plan

Q51 (2007): Does your business have a food safety program, or a HACCP plan?

Base: All respondents
          Yr 2007 Total = 2,300

          Yr 2007 exclusive VIC = 1,900
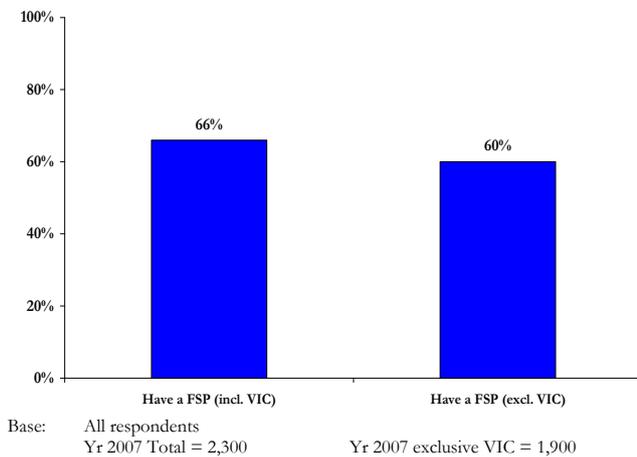
Figure 52: Business has a food safety program, food safety plan or HACCP plan by location

Q51 (2007): Does your business have a Food safety program, food safety plan or a HACCP plan?

Base: All respondents (2007 = 2,300)
          NSW = 400   VIC = 400   QLD = 400   SA = 400
          WA = 400   TAS = 100   NT = 100   ACT = 100
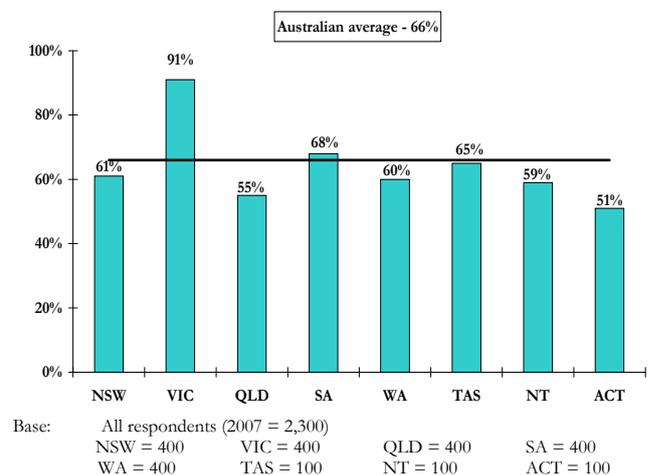
6.6 Summary of similarities and differences between bakeries and other food businesses - Telephone Survey

There has been a number of recent food poisoning incidents associated with poor food handling in bakery[9] businesses. Concerns have been raised about businesses cross-contaminating by reusing piping bags or by other poor handling practices and the use of cracked and dirty eggs.

In order to assess the level of knowledge of safe food handling between bakeries and other types of food businesses the responses to specific questions were compared and differences have been noted.

In total, 120 bakeries were surveyed and have been compared to 2,127 other types of food businesses, which most often included restaurants and takeaway food outlets.

6.6.1 Temperature control in bakeries

In regard to temperature control the key findings among bakeries were:

➢ seven in ten (71%) bakeries thought that they should check the temperature of delivered chilled food using a thermometer or temperature probe;

➢ almost all bakeries (98%) indicated that they had a probe thermometer which was higher than other types of food businesses (87%);

➢ nine in ten (90%) bakeries who stored chilled food knew that chilled food should be stored at or below 5°C;

➢ nine in ten (89%) bakeries who hot-held cooked food knew that the correct holding temperature for cooked food was 60°C or more; and

➢ over seven in ten (73%) bakeries knew that they could leave cooked chicken and casseroles intended for serving hot for up to two to four hours.

6.6.2 Protecting food from contamination and hygiene in bakeries

In regard to protecting food from contamination the key findings among bakeries were:

➢ nine in ten bakeries (88%) had their employees wear disposable gloves when handling food. In general, respondents in bakeries had a high level of knowledge concerning the appropriate use of disposable gloves for multiple tasks (above 90%) and the correct cleaning of a knife (94%).

➢ similarly to other businesses there were gaps in knowledge about using the same equipment for preparing raw meat and vegetables that are going to be cooked together (11% were correct) and appropriate storage of food in a cool room (87% were correct).

➢ one in five bakeries (20%) thought it was safe for food handlers to directly touch bread and almost one in ten (8%) thought it safe to directly touch ham.

➢ without prompting, 57% of bakeries indicated that staff who are unwell should not be at work at all and 41% said that they should avoid anything to do with food implements. Three percent did not know which food preparation tasks they should avoid.

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[9] For the purpose of the Telephone Survey, a bakery was defined as a business that prepares fresh bread, pastries and/or pies for sale and distribution.

6.6.3   Cleaning and sanitation in bakeries

In regard to cleaning and sanitation in bakeries the key findings were:

➢ hand washing of containers and utensils was more common in bakeries (68% only hand wash) compared to other types of food businesses (51% only hand wash). Far fewer bakeries used a dishwasher (31%) than other food businesses (47%).

➢ almost one in ten (8%) bakeries thought that piping bags *did not* have to be cleaned and sanitised after each use compared to a minority (3%) of other food businesses.

6.6.4   Awareness of the new Food Safety Standards

With the introduction of the new National Food Safety Standards between 2001 and 2003, three in five (60%) bakeries indicated that they had changed their practices. One in five (21%) bakeries had not changed their practices mainly because they were already compliant with the Standards and the remaining one in five (19%) did not know if they had or had not changed practices.

6.6.5   Food safety programs in bakeries

Overall, 85% of bakeries had heard of food safety programs, food safety plans or HACCP plans and 71% indicated that they had a food safety program (96% of Victorian bakeries and 65% of non-Victorian bakeries). There was no difference in the awareness and use of food safety programs, food safety plans or HACCP plans compared to other food businesses.

6.7 Summary of similarities and differences between sushi makers and other food businesses - Telephone Survey

In recent years there has been increasing concern about sushi makers[10] preparing large quantities of rice and final sushi product in advance while not applying appropriate food safety controls. Of particular concern is the refrigeration of the rice and final sushi product, as well as the addition of an acidic substance to the cooked rice to lower the pH as an alternative to refrigeration.

In order to assess the level of knowledge of safe food handling between sushi makers and other types of food businesses the responses to specific questions were compared.

In total 97 businesses that made sushi on the premises were surveyed (53 were included in the random sample of 2,300 food businesses and 44 'boost' interviews were undertaken for this analysis).

6.7.1 Temperature control

In regard to temperature control the key findings among sushi makers were:

➢ three in four (76%) makers of sushi thought that they should check the temperature of delivered chilled food using a thermometer or temperature probe;

➢ makers of sushi were equally as likely to have a temperature probe (92%) as other types of food businesses (87%);

➢ almost nine in ten (88%) sushi makers who stored chilled food knew that chilled food should be stored at or below 5°C;

➢ eight in ten (81%) sushi makers who hot-held cooked food knew that correct holding temperature for cooked food was 60°C or more; and

➢ almost nine in ten (88%) makers of sushi knew that they could leave cooked chicken and casseroles intended for serving hot for up to two to four hours which was higher than other food businesses (76%).

6.7.2 Protecting food from contamination and hygiene

In regard to protecting food from contamination the key findings among makers of sushi were:

➢ nine in ten makers of sushi (87%) had their employees wear disposable gloves when handling food – similar to all food businesses. Almost all (97%) knew that the same gloves cannot be used to unpack raw vegetables and to slice cold meat. However, fewer knew that the same gloves cannot be used to clean and wipe tables as well as unstacking the dishwasher (87%) compared to other food businesses (94%); and that a knife cannot be cleaned with a damp sponge (90% and 95% respectively).

➢ similarly to other businesses there were gaps in knowledge about using the same equipment for preparing raw meat and vegetables that are going to be cooked together (7% were correct) and appropriate storage of food in a cool room (79% were correct).

➢ three in ten (28%) sushi makers thought it was safe for food handlers to directly touch bread and one in ten (11%) thought it safe to directly touch ham.

➢ without prompting, 67% of sushi makers indicated that staff who were unwell should not be at work at all and 31% said that they should avoid anything to do with food implements. Four percent did not know which food preparation tasks should be avoided which was higher than other food businesses (1%).

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[10] For the purpose of the Telephone Survey, sushi makers were defined as a business that makes sushi on the premises.

6.7.3   Cleaning and sanitation

The use of dishwashers was more common among sushi makers (66%) compared to other types of food businesses (47%). A lower proportion of sushi makers hand washed containers and utensils (70%) compared to other food businesses (82%).

Sushi makers appear somewhat better informed about the appropriate temperature for sanitisation:

➢ makers of sushi with a dishwasher were more likely to believe that the final rinse of the dishwasher should be 71°C or above (80%) compared to other food businesses (59%), as the correct rinse temperature should be above 71°C to kill bacteria.

➢ makers of sushi who hand washed were more likely to nominate *any* temperature of hot water that will kill bacteria on food preparation utensils (71%) compared to other types of food businesses (57%). Most importantly makers of sushi were more likely to indicate the temperature of hot water should be above 71° to kill bacteria (37%) compared to other food businesses (26%).

6.7.4   Awareness of the new Food Safety Standards

With the introduction of the new National Food Safety Standards between 2001 and 2003, 44% of sushi makers indicated that they had changed their practices. Two in five (40%) had not changed their practices mainly because they were already complaint with the Standards and the remaining 16% did not know if they had or had not changed their practices.

6.7.5   Food safety programs

Overall, 79% of sushi makers had heard of food safety programs, food safety plans or HACCP plans and 65% indicated that they had a food safety program (88% of Victorian sushi makers and 58% of non-Victorian sushi makers). There was no difference in the awareness and use of food safety programs, food safety plans or HACCP plans compared to other food businesses.

6.8   Summary of State/Territory differences (Telephone Survey)

The following table shows the 2007 national results for questions that had a robust sample base and indicates the State/Territories whose result was significantly above or below the national average for the telephone survey. The table also compares the results from 2001 (where applicable). The base for each question is those businesses that were eligible to answer the question.

In interpreting this summary the reader should be aware that the survey does not take into account additional jurisdictional food safety requirements that may be in place (for example, the requirement for all Victorian business, except low risk businesses, to have a food safety plan), or differing jurisdictional implementation and enforcement strategies and priorities.

Table 15: Summary of State/Territory differences				
	2007 National Results	**Above National Rate**	**Below National Rate**	**2001 National Results**
Delivered Frozen Food				
Q15. Have frozen food delivered	82%	-	-	na
Q16. Should *always* check temperature when delivered[11]	77%	-	ACT (67%)	na
Q17. Should use a thermometer / temp probe	72%	VIC (77%)	-	na
Delivered Chilled Food				
Q18. Have chilled food delivered	83%	-	-	na
Q19. Should *always* check temperature when delivered[11]	79%	-	NT (66%)	na
Q20. Should use a thermometer / temp probe	74%	VIC (84%)	WA (68%)	na
Delivered Hot Food				
Q21. Have hot food delivered	1%	-	QLD (0%) SA (0%)	na
Temperature Probe				
Q24. Have a temperature probe	90%↑	VIC (95%)	NSW (82%) WA (83%)	73%
Storing Chilled Food				
Q25. Store chilled food	95%↑	-	-	92%
Q26. Should store at 5°C or less	85%↑	VIC (92%) SA (89%)	NSW (81%) WA (80%) NT (78%)	78%
Holding Hot Food				
Q27. Hold hot food	45%↑	WA (52%)	-	38%

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[11] The Food Safety Standards specify that the temperature of potentially hazardous food should *always* be checked upon delivery or that there is an alternative system in place to ensure the safety of delivered potentially hazardous food.

Table 15:   Summary of State/Territory differences

	2007 National Results	Above National Rate	Below National Rate	2001 National Results
Q28. Hold at 60°C or more	85%↑	-	-	77%
Cooling Food				
Q29. Cook food then cool for re-use	34%	-	-	31%
Q30. Cooling from 60°C to 21°C – within 2 hours	72%↑	-	-	47%
Q31. Cooling from 21°C to 5°C – within 4 hours	83%↑	-	-	51%
Q32. Food should be in small containers in cool room – True	83%↑	-	WA (74%)	71%
Temperature Knowledge				
Q33a. Cooked rice needs to be kept in fridge (yes)	91%↑	-	NT (83%)	79%
Q33b. Beef curry needs to be kept refrigerated (yes)	94%↑	-	NT (86%)	85%
Q33c. Peanut butter needs to be kept in fridge (yes – but correct answer "no")	41%↑	QLD (53%) NT (56%)	VIC (30%)	33%
Q34. Safely leave cooked chicken/casseroles for 2-4 hours	10%	VIC (20%)	NSW (5%) QLD (4%)	na
Cleaning and Sanitation				
Q35. Dishwasher only	17%↑	-	-	12%
Q35. Hand washing only	52%↓	WA (63%)	VIC (45%) ACT (39%)	63%
Q35. Use dishwasher and hand wash	30%↑	VIC (38%)	WA (22%)	25%
Q36. Final dishwasher rinse should be between 71-80°C or hotter	60%	-	-	56%
Q37. Hot water kill bacteria at 71-80°C or hotter	26%↓	ACT (40%) VIC (33%)	WA (20%)	35%
Q38. Should always use a chemical sanitiser after washing cups, utensils	76%↑	-	-	64%
Q39a. Chemical sanitisers should be mixed with hot water – False	64%↑	SA (70%)	ACT (54%)	53%
Q39b. Detergents kills micro-organisms – False	73%↑	-	NT (61%)	69%
Q39c. Dirty chopping board must be washed before sanitised – True	96%↑	-	-	94%
Contamination and Hygiene				
Q40. Employees wear disposable gloves	85%↑	ACT (95%)	-	74%

Table 15:   Summary of State/Territory differences

	2007 National Results	Above National Rate	Below National Rate	2001 National Results
Q41a. Same gloves to unpack raw meat and slice cold meat – False	97%	-	NT (94%)	97%
Q41b. Same gloves to clean tables and unstack dishwasher – False	94%	-	-	94%
Q41c. Same equipment can be used for raw meat and vegetables when cooked – True	9%	-	NSW (6%)	9%
Q41d. Vegetables can be stored above cooked food in cool room - False	82%↓	-	-	88%
Q41e. Knife can be cleaned by wiping with damp sponge – False	95%	-	-	95%
Q41f. Safe to directly touch bread – False	72%	NSW (78%) ACT (80%)	VIC (66%)	74%
Q41g. Safe to directly touch ham – False	86%↓	-	VIC (83%)	90%
Q41h. Piping bags should be cleaned and sanitised after each use - True	90%	-	-	na
Q42. Should not be at work with diarrhoea	53%	VIC (61%)	NT (42%)	na
Q42. Nothing to do with food/food implements	49%	-	VIC (42%)	na
Information, Standards & Regulation				
Q43. Contact local council for food safety information	51%	VIC (66%) SA (63%) TAS (62%)	NSW (36%) QLD (45%) NT (30%) ACT (28%)	49%
Q43. Contact State health department for food safety information	33%↓	QLD (39%) NT (48%)	VIC (24%) SA (27%)	42%
Q43. Contact FSANZ /Food safety auditor for food safety information	24%↑	-	-	4%
Q43. Contact industry assoc. for food safety information	20%↓	-	-	27%
Q43. Contact website for food safety information	17%↑	VIC (21%)	WA (12%)	0%
Q44. Easy to locate food safety information	85%↑	VIC (89%)	-	68%
Q45. Informed about food safety regulations	86%↑	VIC (92%)	WA (82%)	80%
Q46. Aware of new Food Safety Standards	62%↑	VIC (77%) SA (70%)	WA (51%) TAS (52%) NT (53%)	57%
Q47. Changed practices as a result of new standards	55%	-	-	na

Table 15:   Summary of State/Territory differences

	2007 National Results	Above National Rate	Below National Rate	2001 National Results
Q48a. Changed way food is handled	75%	NSW (85%)	VIC (65%)	na
Q48b. Changed way food is stored	65%	NSW (73%)	-	na
Q48c. Changed way food is displayed	44%	-	-	na
Q48d. Changed way food is transported	38%	-	-	na
Q48e. Changed hand washing practices	62%	-	-	na
Q48f. Changed equipment washing practices	73%	SA (81%)	-	na
Q48g. Staff educational requirements	83%	-	-	na
Q48h. Purchased new equipment	65%	-	-	na
Food safety programs				
Q50. Heard of food safety programs, Food Safety Plans or HACCP plans	81%	VIC (94%) SA (85%)	QLD (76%) NT (69%)	na
Q51. Have a food safety program[12]	66%	VIC (91%)	QLD (55%) ACT (51%)	na
Training				
Q52. Food safety training provided to staff	89%↑	VIC (94%)	WA (84%)	74%
Q53. Informal/ On the job training	57%	-	VIC (51%)	na
Q53. External staff training programs	39%	VIC (54%)	WA (25%)	na
Q53. Induction/ Workplace training programs	27%	WA (32%)	NSW (21%)	na
Q53. Workplace training by Food Safety Manager	22%	-	-	na

Base: Eligible to answer question

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[12] Victoria has additional requirements for all food businesses (except low risk businesses) to have a documented food safety program.

7.   Part 2 - Observational Survey among food businesses

On-site observational surveys were completed by Environmental Health Officers (EHOs) in randomly selected local councils. Randomly selected food businesses in councils were advised that participation in the survey was voluntary and not part of any enforcement regime - the survey was not conducted in association with a normal inspection. The Observational Survey used the skills of these trained personnel to assess food handling practices. The EHOs were briefed to collect the survey data in a consistent manner.

For the most part, the EHO responded based on what they observed or measured, however, in some instances an answer could not be determined through observation and consequently the EHO asked questions of someone at the food business. Thus, the survey instrument measured food handling practice in two ways:

> ➢ the EHO observed food business staff handling food; and
> ➢ the EHO asked the manager or supervisor some questions.

In most cases responses were limited to 'yes/no' and two aspects were recorded:

> ➢ either 'Yes' or 'No' to indicate the answer to the question; and
> ➢ either 'Observed' or 'Asked' to indicate whether the EHO elicited the information through observation of practice, or asking a staff member.

The 'Not Apply' response was provided to allow the EHO to record cases where the question was not relevant to the business.

For example: If the EHO observed that: yes, the business did check that frozen food was received frozen, the EHO would circle yes, and obs.

Other questions provided a list of response options appropriate to the question.

The proportion of answers that were observed in 2007 is identified at the base of each graph and table.

7.1   Temperature control

Information was sought on the practices used by businesses to ensure that potentially hazardous food is kept under temperature control during receipt, storage, display and transport. Businesses can maintain safety by keeping chilled food at or below 5°C, hot food 60°C or above or by ensuring that the time that potentially hazardous food is at another temperature does not allow bacteria to multiply to unsafe levels.

Businesses that were not receiving, storing, displaying or transporting potentially hazardous food within the safe temperature guidelines were asked whether they had an alternative system to ensure the time/temperature they utilised was safe and whether they documented that system.

The Observational Survey identified whether businesses that cooked potentially hazardous food did so at the correct temperature for the correct amount of time, whether cooked food that is cooled for later use is done so to the correct temperature within the correct amount of time and whether cooked food that has been cooled is reheated rapidly for holding at hot temperatures.

The EHOs identified whether businesses had a probe thermometer to measure temperature and whether staff knew how to use it.

7.1.1   *Receiving food*

It is important that potentially hazardous food has been kept under temperature control during transportation and that businesses have a system for checking the temperature of potentially hazardous food when it is delivered to the business. A staff member needs to be available to check temperatures or the business needs to have some other system for ensuring food is at the correct temperature.

The Observational Survey identified whether businesses had food delivered outside of the businesses' hours, whether temperature checks were made or whether the business had an alternative, documented system in place.

One quarter of businesses in 2001 (24%) and 2007 (25%) had food delivered outside of the businesses' hours of operation (Figure 53).

Businesses more likely to have food delivered outside of the businesses' hours of operation included:

> ➢ businesses in South Australia (36%) particularly compared to the ACT (5%); and

> ➢ metropolitan (30%) compared to non-metropolitan businesses (18%).

Figure 53: Food delivered outside business hours

Q9 (2001):   Food is delivered to the premises outside of business hours?
Q10 (2007): Food is delivered to the premises outside of business hours
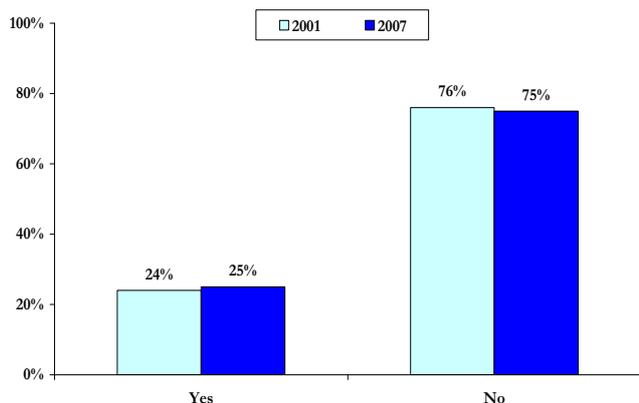
Base: All businesses (excluding no answer)
         Yr 2001 = 476   Yr 2007 = 908 (Q10 - 3% of responses observed)

Figure 54: Food delivered outside business hours by location

Q10 (2007): Food is delivered to the premises outside of business hours
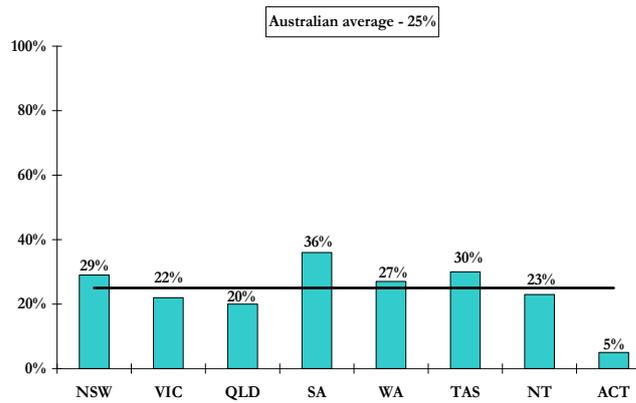
Base: All businesses
         NSW = 203   VIC = 194   QLD = 180   SA = 118
         WA = 119   TAS = 23*   NT = 31   ACT = 40
Note: * small base

7.1.2   *Probe thermometers*

All food businesses that handle potentially hazardous food must have a probe thermometer if they are to check the food temperature accurately. The Observational Survey identified whether businesses had a probe thermometer, if it was easily accessible to staff and if they knew how to use it and the process for checking food temperatures. Businesses were not required to have a probe thermometer in 2001 as it was pre-implementation.
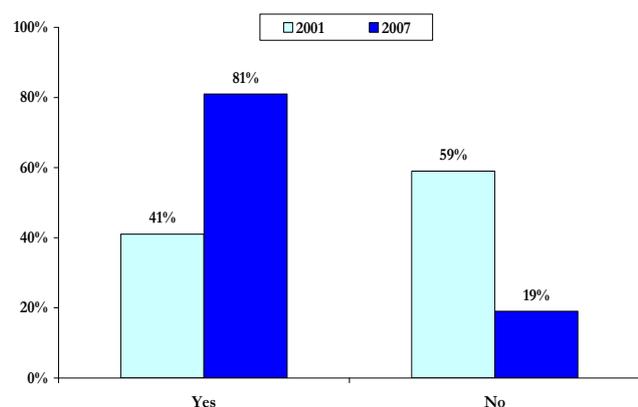
More businesses handling potentially hazardous food had a probe thermometer in 2007 (81%) compared to 2001 (41%). One in five (19%) food businesses did not have a probe thermometer in 2007 (Figure 55).

Businesses more likely to have a probe thermometer included:

➢ Victorian businesses (91%) particularly compared to businesses in the ACT (66%);

➢ large (88%) compared to small businesses (80%);

➢ businesses that had a food safety program (93%) compared to those that did not (74%); and

➢ those for which English was the main language spoken at the business (83%) compared to those that mainly speak another language (69%).

Figure 55: Have probe thermometer
Q45 (2001):   If applicable, the business has a probe thermometer.
Q16 (2007):   Business has a probe thermometer

Base: Business handles potentially hazardous food (excluding no answer)
         Yr 2001 = 432   Yr 2007 = 868 (49% of responses observed)

Figure 56: Have probe thermometer by location
Q16 (2007):   Business has a probe thermometer
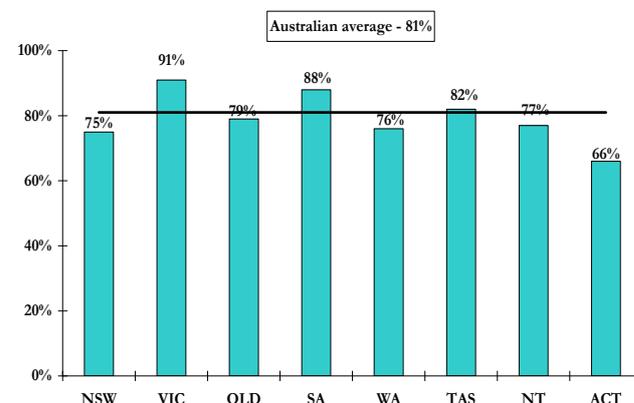
Base: Business handles potentially hazardous food (excluding no answer)
         NSW = 186   VIC = 192   QLD = 171   SA = 115
         WA = 117   TAS = 22*   NT = 30   ACT = 35
Note: * small base

> Among businesses handling potentially hazardous food, the proportion with a probe thermometer has doubled between 2001 and 2007.
>
> In 2007, one in five businesses did not have a probe thermometer.

The probe thermometer was easily accessible to staff in most businesses (93%) (Figure 57) and staff were equally as knowledgeable on the use of the probe thermometer in 2007 (93%) as in 2001 (91%) (Figure 58). Almost all businesses in South Australia (98%) had staff who were deemed to know how to use a probe thermometer compared to fewer in Queensland (85%).

Figure 57: Probe thermometer easily accessible to staff
Q17 (2007):   Probe thermometer easily accessible to staff

Base: Business handles PHF and has a probe thermometer (excluding no answer)

Yr 2007 = 686 (63% of responses observed)

Figure 58: Staff know how to use probe thermometer
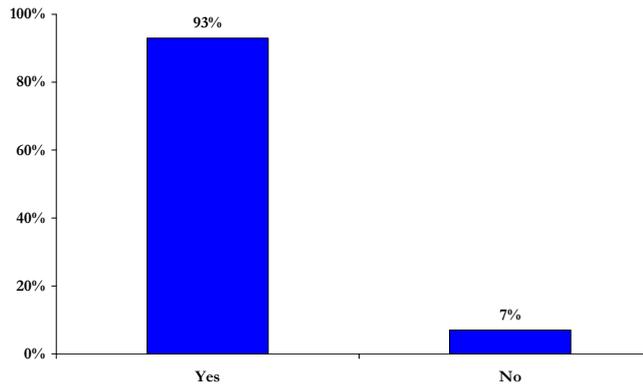*Q46 (2001):   If applicable, the staff know how to use the probe thermometer.*
Q18 (2007):   Staff know how to use the probe thermometer
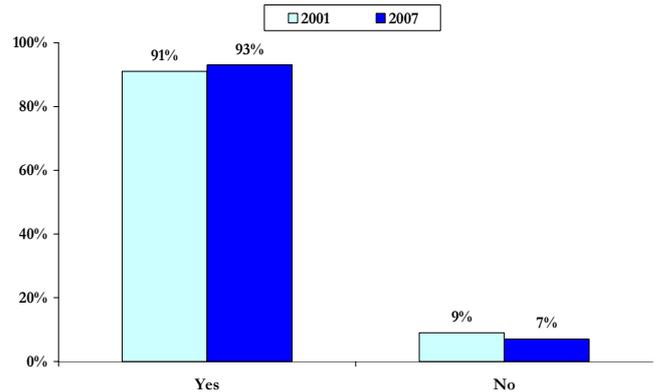
Base: Business handles PHF and has a probe thermometer (excluding no answer)
Yr 2001 = 171   Yr 2007 = 685 (24% of responses observed)

7.1.3   *Checking potentially hazardous food temperature*

In 2007, more businesses that had potentially hazardous food delivered checked that the food was received at a safe temperature (71%) compared to 2001 (35%) (Figure 59). Another 9% of businesses had an alternative system in place. Very few businesses (16%) that had an alternative system in place documented that this alternative system was effective, in place and working.

Overall this equated to:

➢ 56% of businesses in 2001 that checked potentially hazardous food was received at a safe temperature or had an alternative system in place; and increasing to

➢ 80% of businesses in 2007 that checked potentially hazardous food was received at a safe temperature or had an alternative system in place.

Victorian businesses were more likely to have staff check that delivered potentially hazardous food was received at a safe temperature (85%) particularly compared to Western Australian businesses (61%). Only 12% of Victorian businesses did not check the temperature of delivered potentially hazardous food or have an alternative system in place.

Other differences by business type revealed:

➢ large businesses were more likely to have a system[13] for checking the safety of delivered potentially hazardous food (89%) compared to small businesses (79%);

➢ businesses supplying potentially hazardous food to vulnerable groups were more likely to have a system for checking the safety of delivered potentially hazardous food (89%) compared to those who did not supply food to high risk groups (79%);

➢ businesses with a food safety program were more likely to have a system for checking the safety of delivered potentially hazardous food (92%) compared to businesses without a food safety program (73%); and

➢ businesses in which English was the main language spoken were more likely to have a system for checking the safety of delivered potentially hazardous food (81%) compared to businesses in which English was not the main language spoken (70%).

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[13] A 'system' refers to the combined total of those who had staff that checked the temperature of potentially hazardous food or had an alternative system for checking food temperature.

Figure 59: Staff checks the temperature of potentially hazardous food delivered to the business

Q10 (2001):   A member of staff checks that PHF is received at the correct temperature at the time of delivery?

Q11 (2007):   Staff checks that PHF is received at a safe temperature

Q11 (2001):   Does the business have an alternative system for ensuring that PHF is received at a temperature that will not adversely affect the business being able to use the food safely?

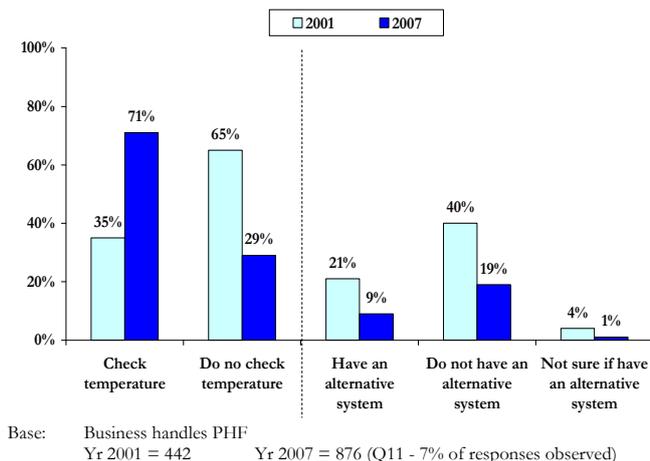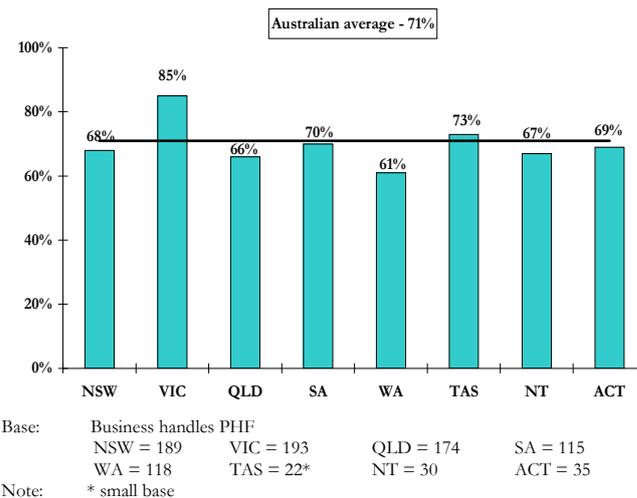*Q12 (2007):   Has an alternative system for PHF food receipt*

Figure 60: Staff checks the temperature of potentially hazardous food delivered to the business by location

Q11 (2007):   Staff checks that PHF is received at a safe temperature.

Base: Business handles PHF
          Yr 2001 = 442   Yr 2007 = 876 (Q11 - 7% of responses observed)

Base: Business handles PHF
          NSW = 189   VIC = 193   QLD = 174   SA = 115
          WA = 118   TAS = 22*   NT = 30   ACT = 35
Note: * small base

In 2007, four in five businesses (80%) checked the temperature of delivered potentially hazardous food or had an alternative system for ensuring its safety. This represents an increase from 2001 (56%).

`Method of checking temperature of delivered chilled food

In 2001 the way in which the temperature of delivered food is checked was assessed for food in general. In 2007 the question specifically required observation of chilled food. As a consequence the results are not directly comparable but have been presented as an indicator of a change in temperature checking practices.

In 2007, of those businesses that had chilled food delivered, staff used a combination of methods to check its temperature on delivery (multiple responses were allowed). Most commonly they checked the temperature through touch (75%) and by looking at it (75%). Half (53%) of the businesses would generally check the temperature of delivered chilled food using a thermometer (Figure 61). Three in ten (29%) looked at the temperature gauge in the delivery vehicle, while fewer (15%) used a laser or ray gun. Seven percent used another method which commonly involved relying on the delivery company to transport at the correct temperature - sometimes a receipt was provided with the temperature recorded.

The results suggested that between 2001 and 2007 a higher proportion of businesses checked the temperature of food using a thermometer or laser gun. However, there has been an increase in the proportions using a general assessment of the temperature (touch and look). There is less reliance being placed on the temperature gauge in a delivery vehicle.

The pattern of responses by location in 2007 indicated that Victorian businesses differed to their counterparts when checking the temperature of delivered chilled food. When compared to the national average, a higher proportion of Victorian businesses generally used a thermometer (77%), the temperature gauge in the delivery vehicle (38%) and laser or ray guns (24%), while fewer touched (62%) or looked (66%) at the chilled food.

Other differences by business type revealed:

> ➢ small businesses more often checked the temperature of the chilled food by touch (78%) and looking at it (76%) and less often by using a thermometer (50%), temperature gauge in the delivery vehicle (27%) and laser or ray gun (12%). In contrast, large businesses more often used a thermometer (70%), temperature gauge in the delivery vehicle (42%) and laser or ray gun (33%) and less frequently relied on touch (59%) and appearance (67%);

> ➢ businesses supplying to high risk groups were more likely to use a thermometer (65%), the temperature gauge in the delivery vehicle (50%) and a laser or ray gun (32%) compared to other businesses (52%, 27% and 13% respectively); and

> ➢ businesses with a food safety program were more likely to use a thermometer (78%), temperature gauge in the delivery vehicle (41%) and laser gun (26%) compared to those without a food safety program (38%, 21% and 7% respectively).

Figure 61: Methods for checking food temperature

Q47 (2001): How do staff generally check the temperature of the food?

Q19 (2007): How staff generally checks the temperature of delivered chilled food
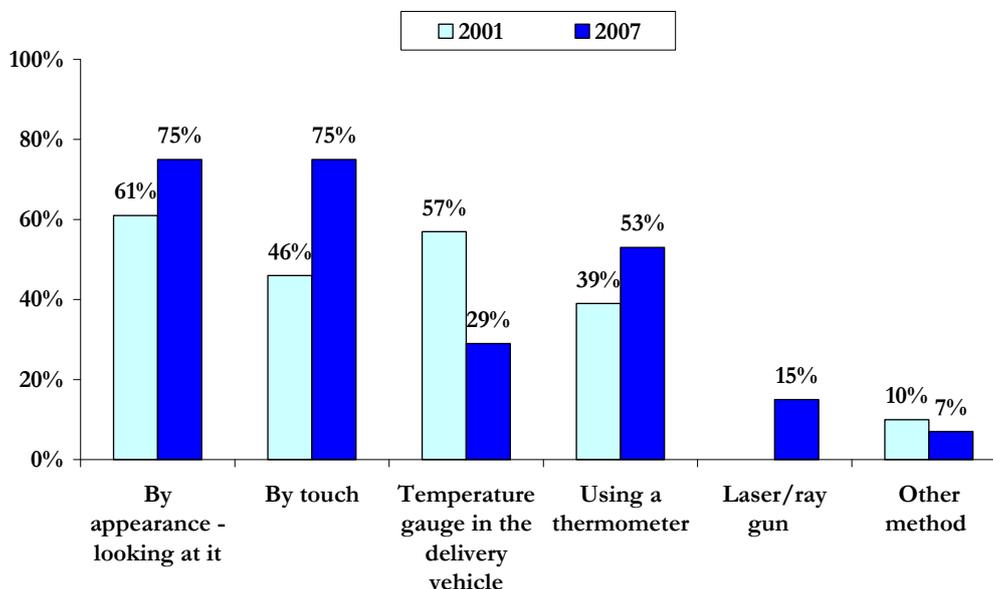
Base: 2001 - Business handles potentially hazardous food (excluding no answer)
2007 – Business receives chilled potentially hazardous food (excluding no answer)
Yr 2001 = 423   Yr 2007 = 805
Note: Multiple response possible

Half of the businesses generally checked the temperature of delivered chilled food with a thermometer.

Frozen food is frozen upon delivery

While the majority of businesses in 2001 and 2007 that received deliveries of frozen food checked that it actually was frozen, a higher proportion in 2007 (96%) did so than in 2001 (91%). Only a minority (4%) of businesses did not routinely check frozen food upon delivery (Figure 62).

Figure 62: Potentially hazardous frozen food is frozen upon delivery

Q12 (2001): The business checks that potentially hazardous food intended to be frozen upon delivery is frozen when accepted

Q14 (2007): Checks that frozen food is received frozen

Base: Business receives frozen food
         Yr 2001 = 410   Yr 2007 = 836 (6% of responses observed)
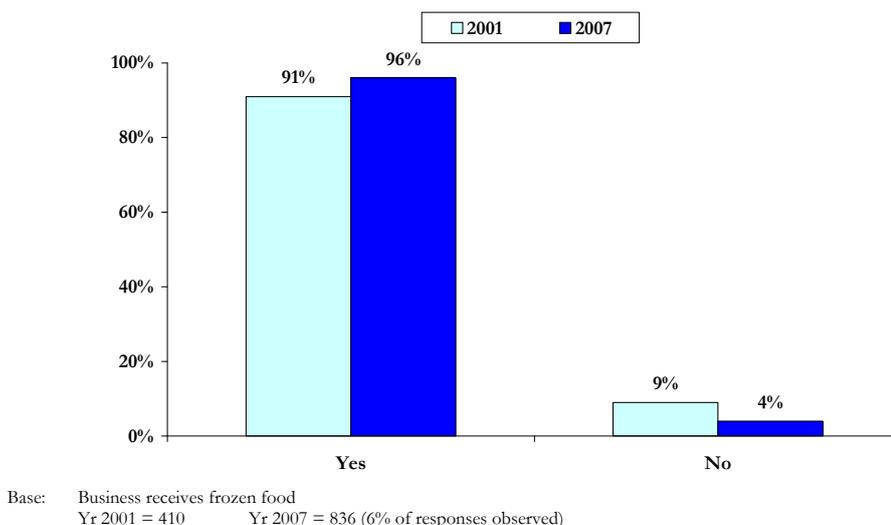
7.1.4   *Temperature controlled storage of potentially hazardous food*

Potentially hazardous food must either be stored chilled (5°C or below) or hot (60°C or above), or at another temperature if it can be demonstrated that the food can be safely stored at that temperature.

The Observational Survey identified whether chilled food was stored at the correct temperature and whether there was adequate space in the cool room. If chilled food was not refrigerated at the correct temperature, the EHO determined whether the business had an alternative, documented system in place for ensuring the safety of potentially hazardous food.

Chilled potentially hazardous food storage

Among businesses that stored chilled food, more correctly stored chilled food at or below 5°C in 2007 (97%) compared to 2001 (91%). The remaining 3% of businesses did not have an alternative system for ensuring that the chilled food was stored safely (Figure 63).

Overall this equates to:

➢ 93% of businesses in 2001 that stored chilled food did so at 5°C or below or had an alternative system in place; and increasing to

➢ 97% of businesses in 2007 that stored chilled food did so at 5°C or below or had an alternative system in place.

Queensland businesses were least likely to store chilled food at 5°C or below or have an alternative system in place (6% did not store chilled food at 5°C or below).

Figure 63: Chilled potentially hazardous food stored at or below 5°C

Q14 (2001): Chilled potentially hazardous food is stored at or below 5°C
Q20 (2007): Chilled food is stored at or below 5°C
Q15 (2001): Does the business have an alternative system for ensuring that chilled potentially hazardous food is being stored safely?
Q21 (2007): Has an alternative system for ensuring chilled food is being stored safely

Base: Business stores chilled PHF
         Yr 2001 = 456   Yr 2007 = 885 (Q20 - 78% of responses observed)
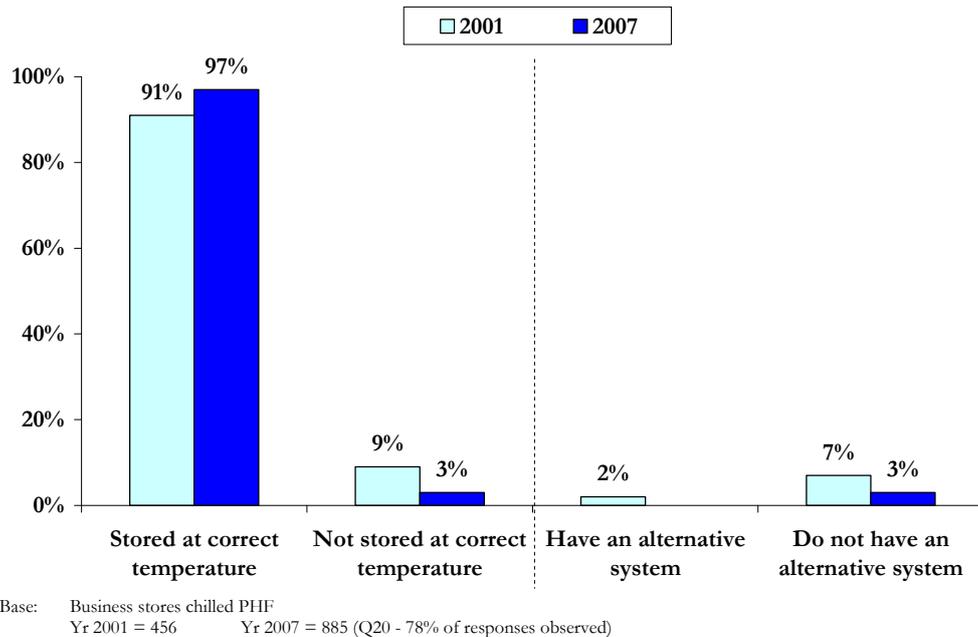
Among businesses that stored chilled food, there has been a significant increase between 2001 and 2007 in the proportion that correctly stored chilled food at or below 5°C (91% in 2001 and 97% in 2007).

In 2007, few businesses were observed with inadequate storage in the cool room or refrigerator (6%). Similarly to 2001 (94%), the vast majority of businesses had adequate storage (94%) (Figure 64).

Businesses that were more likely to have inadequate storage included:

> ➢ businesses located in Queensland (10%) compared to the national average (6%);

> ➢ metropolitan (7%) compared to non-metropolitan businesses (4%); and

> ➢ businesses in which English was not the main language spoken (12%) compared to those for which English was the main language (6%).

Figure 64: Adequate space for potentially hazardous food in cool room

Q17 (2001): There is adequate space to store potentially hazardous food in the cool room.
Q24 (2007): There is adequate space in the cool room/refrigerator
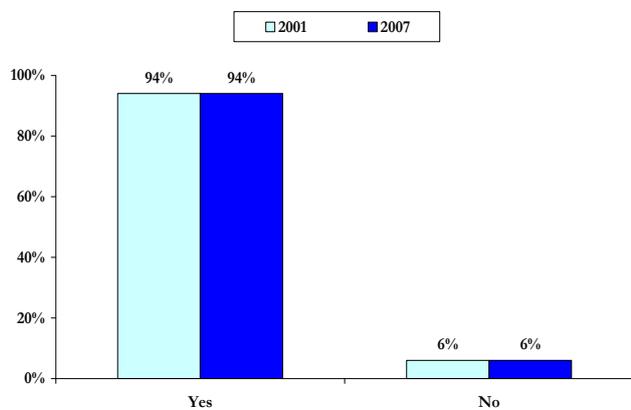
Base: Business stores chilled and ready-to-eat food
        Yr 2001 = 444   Yr 2007 = 881 (Q24 - 88% of responses observed)

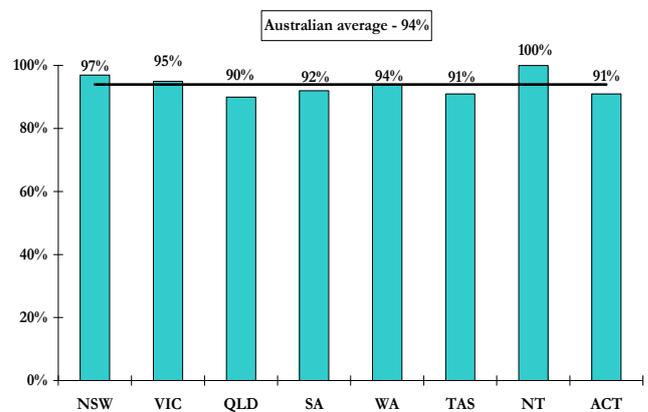**Figure 65: Adequate space for potentially hazardous food in cool room by location**

Q24 (2007): There is adequate space in the cool room/refrigerator

Base: Business stores chilled and ready-to-eat food
        NSW = 197   VIC = 194   QLD = 173   SA = 114
        WA = 116   TAS = 23*   NT = 30*   ACT = 34
Note: * small base

Hot potentially hazardous food storage

The Observational Survey identified whether potentially hazardous hot food was held at or above 60ºC, and if not, whether the business had an alternative system for ensuring that it was held safely.

Similarly to 2001, nearly all businesses that held hot food, held that food at or above 60ºC (92% in 2001 and 93% in 2007). Another 1% of businesses had an alternative system for ensuring that hot food was stored safely (Figure 66). In 2001 and 2007, 5% of businesses that held hot food did not ensure it was maintained at or above 60ºC or have an alternative system in place.

Overall, 94% of businesses that stored hot food were found to have appropriate equipment capable of maintaining hot food at a temperature of at least 60ºC. Additionally 94% had adequate equipment for holding hot potentially hazardous food, that is, sufficient equipment or room within the equipment to hold all hot food at a temperature of at least 60ºC (Figure 67):

> ➢ equipment was less likely to be identified as appropriate or adequate for holding hot potentially hazardous food in businesses for which English was not the main language (87% and 80%) compared to businesses for which English was the main language (95% and 95% respectively).

Figure 66: Hot potentially hazardous food held at or above 60ºC

Q21 (2001): Hot potentially hazardous food is being held at correct temperatures
Q26 (2007): Hot food held at or above 60ºC
Q22 (2001): Does the business have an alternative system for ensuring that hot potentially hazardous food is being held safely?
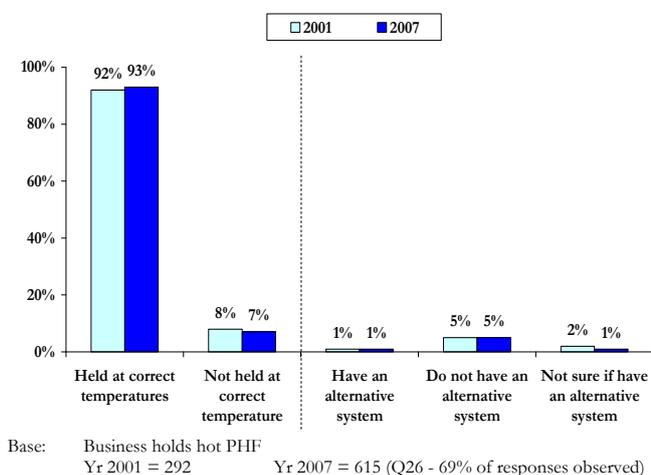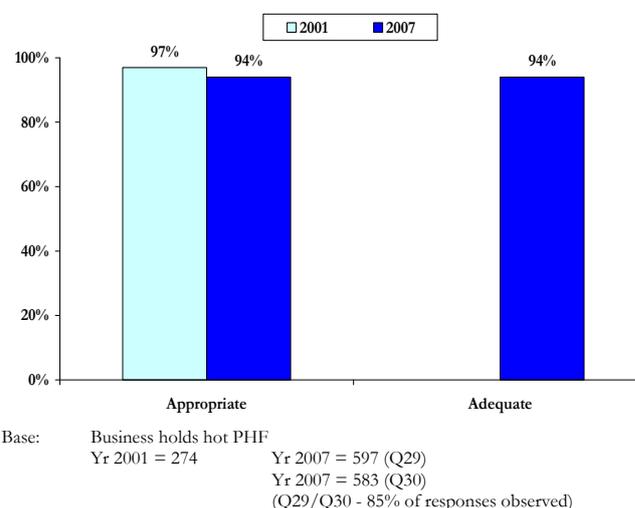*Q27 (2007): Has alternative system for ensuring hot food is stored safely*

Figure 67: Appropriate and adequate equipment for holding hot potentially hazardous food

Q23 (2001): There is appropriate and adequate equipment for holding hot potentially hazardous food
Q29 (2007): Appropriate equipment for holding hot food at least 60ºC
Q30 (2007): Adequate equipment for holding hot PHF

Base: Business holds hot PHF
        Yr 2001 = 292   Yr 2007 = 615 (Q26 - 69% of responses observed)

Base: Business holds hot PHF
        Yr 2001 = 274   Yr 2007 = 597 (Q29)
                            Yr 2007 = 583 (Q30)
                            (Q29/Q30 - 85% of responses observed)

> Among businesses holding hot food, one in twenty did not have appropriate equipment capable of maintaining the food temperature at least 60ºC. Similarly one in twenty businesses holding hot food did not have adequate equipment for holding hot potentially hazardous food.

7.1.5   *Cooking potentially hazardous food*

The Observational Survey identified whether potentially hazardous food was cooked at the correct temperature for the correct amount of time. If the business did not check the time and temperature of cooking the EHO then assessed whether the business had another way of ensuring the food was correctly cooked.

More businesses that cooked food monitored that it was cooked at the correct temperature and for the correct amount of time in 2007 (87%) compared to 2001 (54%). Another 10% had another way of ensuring that food was cooked correctly (Figure 68). Very few (6%) that had an alternative system in place had it documented.

Overall, this equates to:

➢ 88% of businesses in 2001 that monitored that cooked food was cooked at the correct temperature for the correct time or had an alternative system in place to ensure that it was cooked correctly; and increasing to

➢ 97% of businesses in 2007 that monitored that cooked food was cooked at the correct temperature for the correct time or had an alternative system in place to ensure that it was cooked correctly.
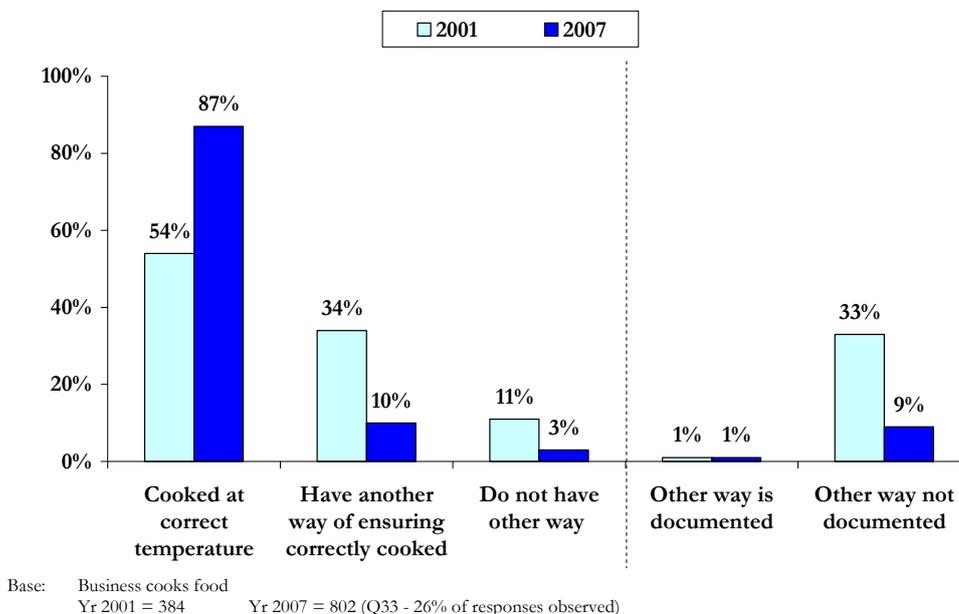
Figure 68: Potentially hazardous food cooked at correct temp for correct amount of time

Q24 (2001): Potentially hazardous food is cooked at the correct temperature for the correct amount of time.

Q33 (2007): Food is cooked at the correct temperature for the correct amount of time

Q25 (2001): The business does not check the temperature and time at that temperature but has another way of ensuring that food is correctly cooked.

Q34 (2007): Does the business have another way of ensuring that food is correctly cooked?

Base: Business cooks food
          Yr 2001 = 384   Yr 2007 = 802 (Q33 - 26% of responses observed)

In 2007, most businesses (97%) had a system for ensuring that food was correctly cooked. This represented an increase from 2001 (88%).

7.1.6 *Cooling cooked potentially hazardous food*

It is important that cooked potentially hazardous food is cooled rapidly. The Food Safety Standards specify cooling from 60ºC to 21ºC within two hours and from 21ºC to 5ºC within an additional four hours. Rapid cooling ensures that bacteria do not get the opportunity to multiply to dangerous levels. The Observational Survey identified whether businesses cooled hot food within the correct amount of time, or whether they had an alternative system for safely cooling such food.

Most businesses in 2001 (85%) and 2007 (87%) that cooked and cooled food did so to the correct temperature in the correct amount of time. Another 3% had an alternative system for safe cooling (Figure 69). Of those that had an alternative system, few documented that this alternative system was effective, in place and working.

Overall this equates to:

> ➤ 89% of businesses in 2001 that cooked and cooled food did so to the correct temperature in the correct amount of time or had an alternative safe cooling system in place; and

> ➤ 90% of businesses in 2007 that cooked and cooled food did so to the correct temperature in the correct amount of time or had an alternative safe cooling system in place.

Businesses for which English was not the main language spoken were less likely to cool cooked food to the correct temperature within the correct amount of time or have an alternative safe cooling system in place (77% compared with 92% of English speaking businesses).
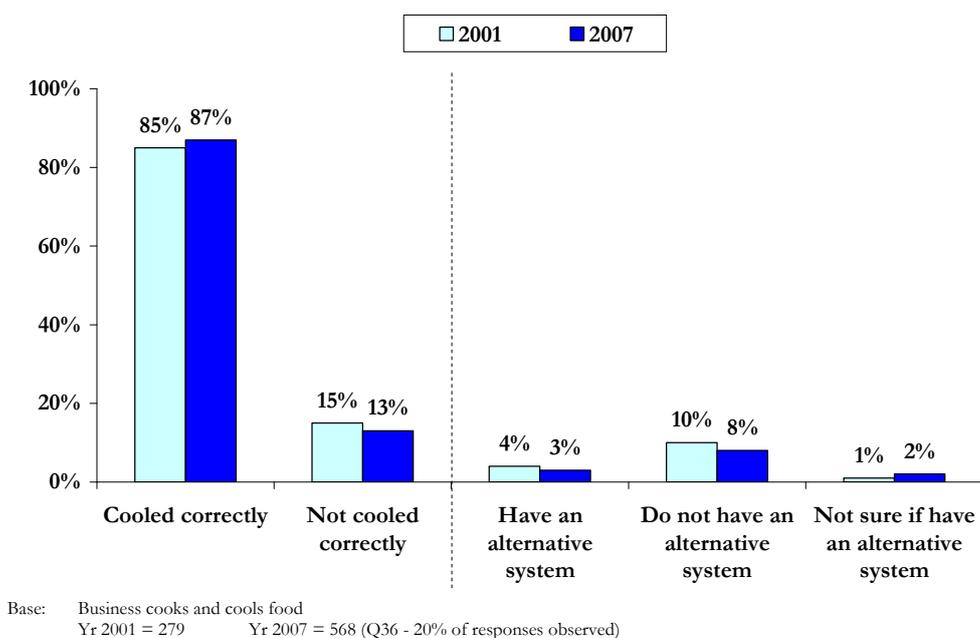
Figure 69: Cooling cooked potentially hazardous food at the correct temperature

Q28 (2001): Cooked potentially hazardous food is cooled to correct temperatures within the correct amount of time.
Q36 (2007): Cooked food cooled to correct temperature within correct amount of time
Q29 (2001): Cooked potentially hazardous food is cooled using safe alternative system.
Q37 (2007): Has an alternative way of ensuring that food is reheated safely

Base: Business cooks and cools food
Yr 2001 = 279   Yr 2007 = 568 (Q36 - 20% of responses observed)

One in ten businesses in 2001 and 2007 did not cool cooked food appropriately.

7.1.7   *Reheating cooked and cooled potentially hazardous food*

Reheating potentially hazardous food must be carried out rapidly to ensure that bacteria do not get the opportunity to multiply to dangerous levels.

Most businesses in 2001 (90%) and 2007 (93%) that reheated pre-cooked food did so to the correct temperature (60ºC) within the correct amount of time (up to 2 hours) (Figure 70). Another 1% had an alternative system for ensuring food was reheated safely.

Overall this equates to:

➢ 91% of businesses in 2001 that reheated cooled food correctly or had an alternative system for ensuring food was reheated safely; and

➢ 94% of businesses in 2007 that reheated cooled food correctly or had an alternative system for ensuring food was reheated safely.
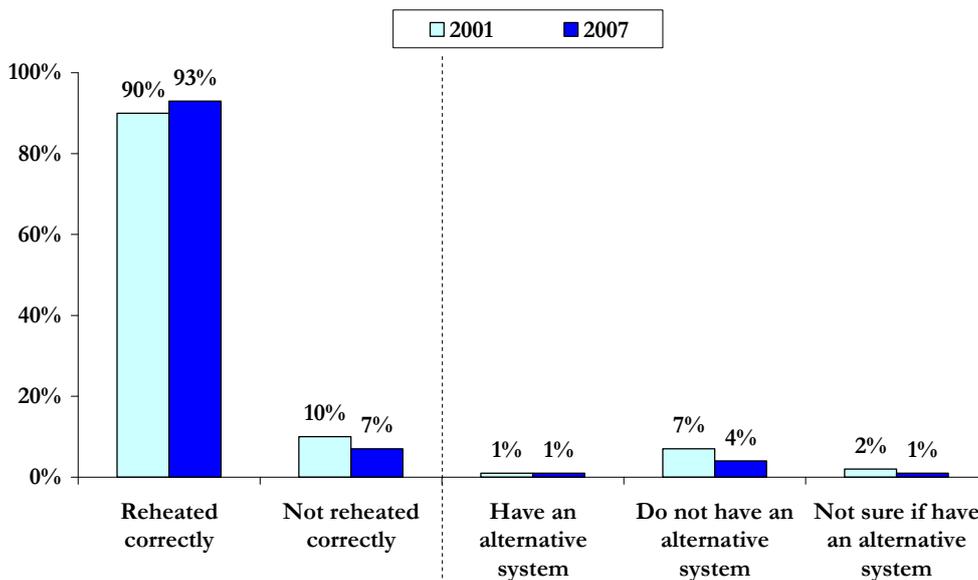
Figure 70: Cooked and cooled potentially hazardous food is reheated rapidly

Q26 (2001): Potentially hazardous food that has been cooked then cooled, and is being reheated for holding at hot temperatures, is reheated rapidly.

Q39 (2007): Cooled food reheated rapidly for holding at hot temperatures

Q27 (2001): Does the business have an alternative system for ensuring potentially hazardous food is reheated safely?

Q40 (2007): Cooled food reheated using a safe alternative system

Base: Business reheats cooled food
         Yr 2001 = 204   Yr 2007 = 403 (Q39 - 18% of responses observed)

Among businesses that heated cooled food, one in twenty did not rapidly reheat pre-cooked food.

7.1.8   *Display of potentially hazardous food*

Displayed potentially hazardous food must be kept chilled (5ºC or below) or hot (60ºC or above) or at another temperature if it can be demonstrated that the time and temperature will not make the food unsafe. Temperature control of food on display was assessed.

Most businesses in 2001 (85%) and 2007 (89%) that displayed potentially hazardous food did so at the correct temperature (Figure 71). Another 4% had an alternative system for ensuring food safety, for example, using time as a control instead of temperature – few of these (22%) documented the system.

Overall this equated to:

> ➢ 88% of businesses in 2001 that displayed food held it at the correct temperature or had an alternative system to ensure that it was displayed safely; and

> ➢ 93% of businesses in 2007 that displayed food held it at the correct temperature or had an alternative system to ensure that it was displayed safely.

Figure 71: Display of food at correct temperature

Q32 (2001): Potentially hazardous food on display is held at the correct temperature.
Q44 (2007): Potentially hazardous food on display is held at the correct temperature.
Q33 (2001): Does the business have an alternative system for ensuring potentially hazardous food is displayed safely?
Q45 (2007): Has an alternative way of ensuring that potentially hazardous food is displayed safely.
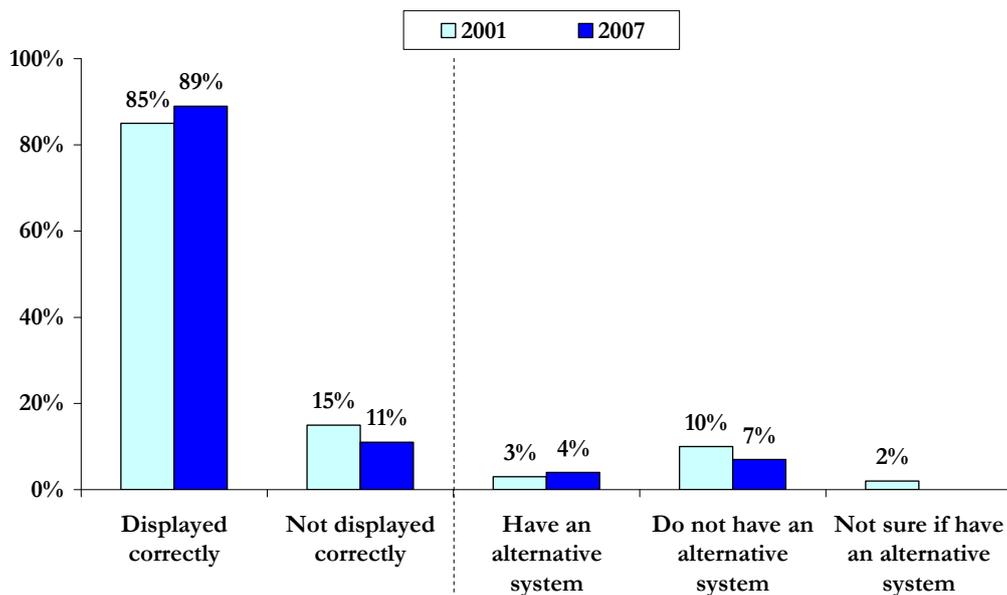
Base: Business displays potentially hazardous food
         Yr 2001 = 230   Yr 2007 = 634 (Q44 - 79% of responses observed)

In 2007, more than nine in ten (93%) businesses held food on display at the correct temperature or had an alternative system for ensuring food safety.

7.1.9   *Transport of potentially hazardous food*

When potentially hazardous food is transported it must be maintained either chilled (5ºC or below) or hot (60ºC or above) or at another temperature if the time held at this temperature is safe. Businesses were asked about temperature control of food during transport.

Of all businesses, one in five in 2001 (20%) and 2007 (18%) indicated that they transported potentially hazardous food (Figure 72). In 2007, potentially hazardous food was more likely to be transported by:

  ➢ high risk businesses (50%) compared to medium (15%) and low (35%) risk businesses; and

  ➢ caterers (38%) compared to non-caterers (16%).

In 2007 among the 18% of businesses that transported potentially hazardous food, 43% transported only chilled food, 23% transported only hot food and 34% transported both chilled and hot potentially hazardous food (Figure 73).

Figure 72: Potentially hazardous food transported

Q36 (2001):   The business transports potentially hazardous food
Q50 (2007):   Business transports food (potentially hazardous)
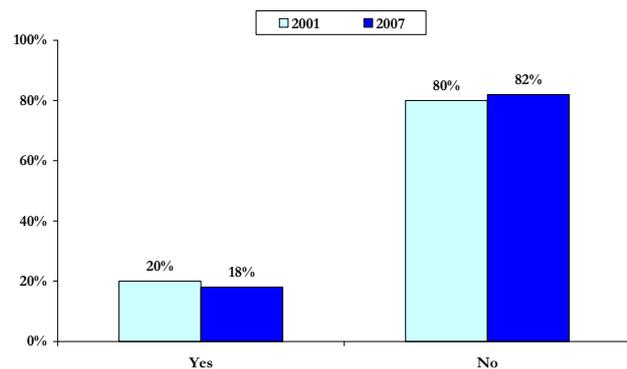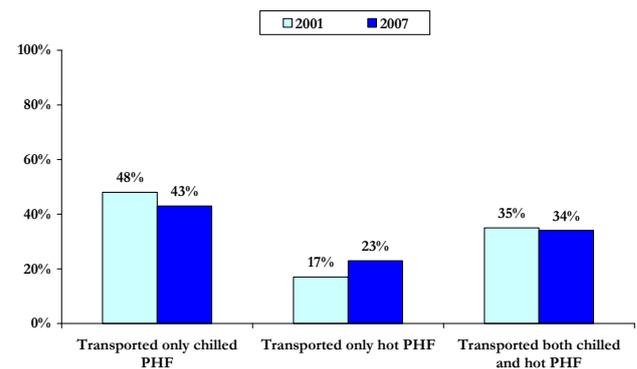

Base: All businesses (excluding no answer)
         Yr 2001 = 483   Yr 2007 = 905 (Q50 - 9% of responses observed)

Figure 73: Type of potentially hazardous food transported

Q37 (2001):   If the business does transport potentially hazardous food, does it transport chilled, hot food or both?
Q52 (2007):   Transports chilled PHF
Q58 (2007):   Transports hot PHF

Base: Business transports potentially hazardous food (excluding no answer)
         Yr 2001 = 96   Yr 2007 = 159 (Q52 - 13% of responses observed)
                               (Q58 - 9% of responses observed)
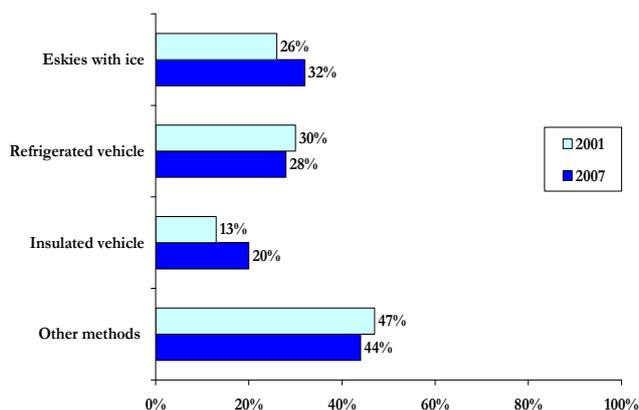
Transport of chilled food

In 2007, 14% of businesses transported chilled food. Of those transporting chilled food, the methods used were similar in 2001 and 2007. In 2007, 32% used an esky with ice as the method of keeping food chilled during transport, 28% used a refrigerated vehicle, 20% used an insulted vehicle and 44% mentioned some other method (Figure 74). Most frequently the other methods of transport did not involve keeping the food under temperature control, that is, the chilled food was carried or driven a short distance (e.g. up to a maximum of 10km and 15 minutes in transit) (25%). Others mentioned transporting the chilled food in an insulated trolley, bag, box or with ice bricks (9%).

Fewer businesses in 2007 compared to 2001 transported chilled food for an extended period of time. Most businesses transporting chilled food did so within one hour (80%). Significantly fewer in 2007 compared to 2001 transported chilled food for more than four hours (3% and 10% respectively) (Figure 75).

Figure 74: Method of transporting *chilled* potentially hazardous food

Q38 (2001): If chilled potentially hazardous food is transported, what method is used?

Q53 (2007): Methods used to transport chilled food

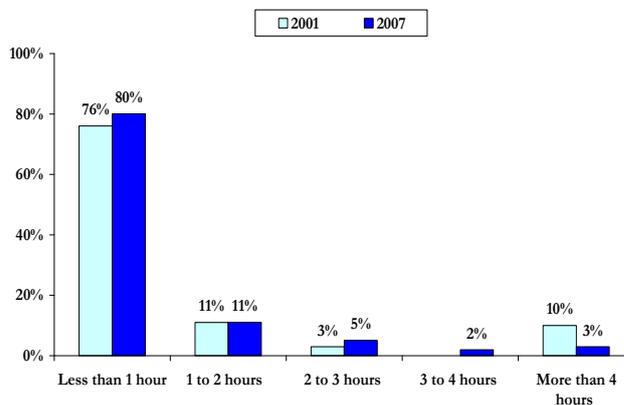Base: Business transports chilled potentially hazardous food (excluding no answer)

Yr 2001 = 77   Yr 2007 = 100

Note: Multiple response possible

Figure 75: Maximum time of transporting *chilled* potentially hazardous food

Q39 (2001): If chilled potentially hazardous food is transported, what is the maximum time of transportation?

Q54 (2007): Maximum time to transport chilled food

Base: Business transports chilled potentially hazardous food (excluding no answer)

Yr 2001 = 79   Yr 2007 = 108

In 2001, the transport of potentially hazardous at the correct temperature was measured. In 2007, the transport of chilled food and hot food at the correct temperature was measured separately. The comparison is made between the transport of potentially hazardous food at the correct temperature in 2001 compared to the transport of chilled food at the correct temperature in 2007. A similar proportion of businesses in 2001 (77% for potentially hazardous food) and 2007 (70%) that transported chilled food did so at or below 5ºC. One in ten (9%) had an alternative system for ensuring chilled food was transported safely and two in ten (19%) did not have an alternative system (Figure 76).
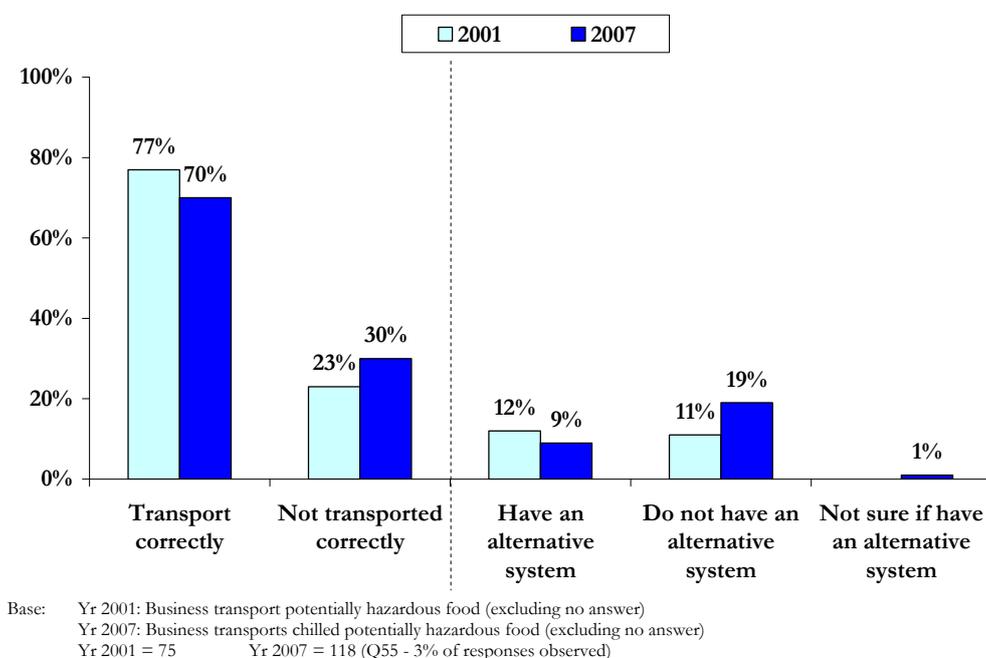
Figure 76: Chilled potentially hazardous food transported at appropriate temperature

Q42 (2001): Potentially hazardous food is transported at the appropriate temperature.

Q55 (2007): Chilled food is transported at the appropriate temperature

Q43 (2001): Does the business have an alternative system for ensuring potentially hazardous food is transported safely?

Q56 (2007): Has an alternative system for ensuring chilled food is transported safely

Base: Yr 2001: Business transport potentially hazardous food (excluding no answer)
         Yr 2007: Business transports chilled potentially hazardous food (excluding no answer)
         Yr 2001 = 75   Yr 2007 = 118 (Q55 - 3% of responses observed)

Transport of hot food

In 2007, one in ten (10%) businesses transported hot food. Of these, 49% used an insulated bag, trolley, or warmer as the method of keeping food hot during transport, 22% used a container or bag with a heat pack, 10% used an insulated vehicle and 4% used an esky. One in three (32%) did not use anything specific to transport hot potentially hazardous food as often it was only transported a short distance (maximum of 15 minutes in transit) (Figure 77). Transported hot potentially hazardous food was less likely to be transported out of temperature control in 2007 (32%) compared to 2001 (76%).

Most businesses transporting hot food did so in less than one hour (84%). This was not significantly different to the incidence in 2001 (94%) (Figure 78).

Figure 77: Method for transporting *hot* potentially hazardous food

Q40 (2001): If hot potentially hazardous food is transported, what method is used?

*Q59 (2007): Methods used to transport hot potentially hazardous food*

Figure 78: Maximum time for transporting *hot* potentially hazardous food

Q41 (2001): If hot potentially hazardous food is transported what is the maximum time of transportation?

Q60 (2007): Maximum time to transport hot potentially hazardous food
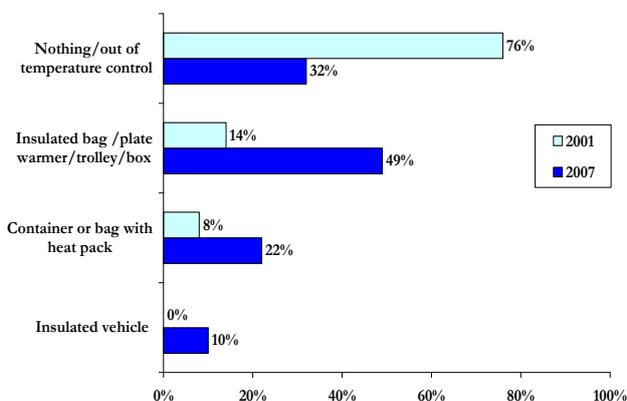
Base: Business transports hot potentially hazardous food
        Yr 2001 = 50   Yr 2007 = 91
Note: Multiple response possible
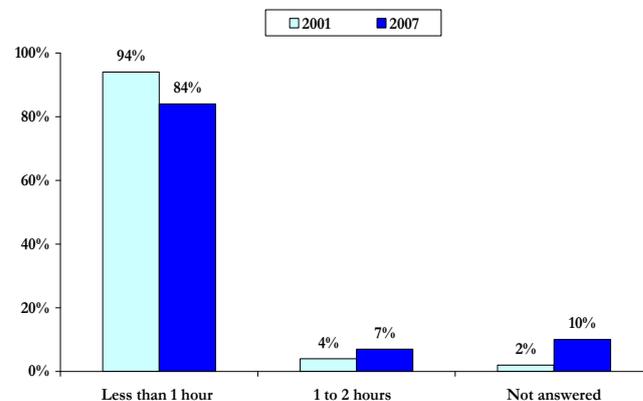
Base: Business transports hot potentially hazardous food
        Yr 2001 = 50   Yr 2007 = 91

In 2001, the transport of potentially hazardous at the correct temperature was measured. In 2007, the transport of chilled food and hot food at the correct temperature was measured separately. The comparison is made between the transport of potentially hazardous food at the correct temperature in 2001 compared to the transport of hot food at the correct temperature in 2007. Most businesses in 2001 (77% for potentially hazardous food) and 2001 (78%) that transported hot food did so at 60ºC or above. Of the remaining 22%, 7% had an alternative system for ensuring that hot food was transported safely and 16% did not (Figure 79).

Figure 79: Hot potentially hazardous food transported at appropriate temperature

Q61 (2007): Hot food transported at the appropriate temperature

Q62 (2007): Has an alternative system for ensuring hot food is transported safely
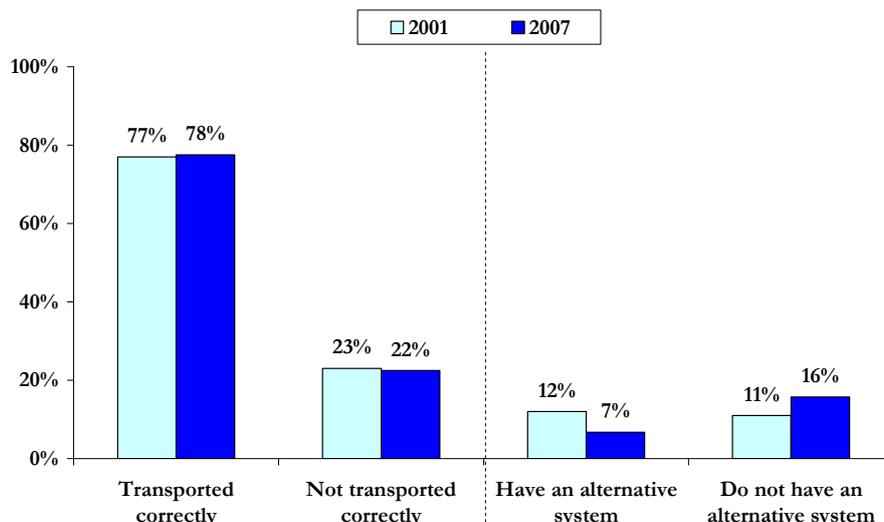
Base: Yr 2001: Business transport potentially hazardous food (excluding no answer)
        Yr 2007: Business transports hot potentially hazardous food (excluding no answer)
        Yr 2001 = 75   Yr 2007 = 89 (Q61 - 8% of responses observed)

7.2   Protecting food from contamination

Pathogenic micro organisms from dirt, people, animals, pests or other food may contaminate unprotected food. Food may also be contaminated by chemicals from spillages or vapours and by physical matter.

The Observational Survey identified whether food was protected at all stages of handling in the business. These steps were: receiving, storage, processing, display and transport of food. Space for chilled storage was checked for adequacy as insufficient space can not only affect cooling rates but increase the risk of cross contamination.

Food storage in the cool room was checked to observe whether raw food was separated from cooked food. Dry goods were checked to ensure they were free from pests.

Information on cleaning, sanitising, hand washing and covering of wounds was obtained to check the possibilities of contamination of food during processing.

Displays of food for self service were checked whether they were supervised and whether new batches were mixed with previous batches.

Protection from contamination was measured across five areas:

> ➤ at the time of receiving food;
> ➤ in storage areas;
> ➤ in food display areas;
> ➤ during food processing; and
> ➤ during transport of food.

7.2.1   Protection of delivered food from contamination

Very few businesses in 2001 (3%) and 2007 (2%) were found to have food that was unprotected from contamination when received (Figure 80).

Figure 80: Protecting delivered food from contamination

Q13 (2001): Food received is protected from contamination
Q15 (2007): Food received protected from contamination when received

Base: All businesses (excluding no answer)
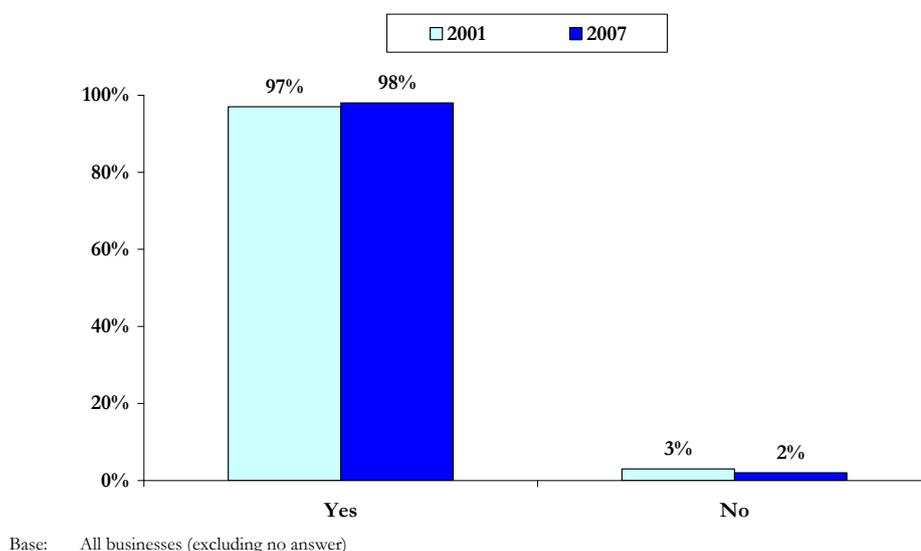
Yr 2001 = 450   Yr 2007 = 897 (Q15 - 12% of responses observed)

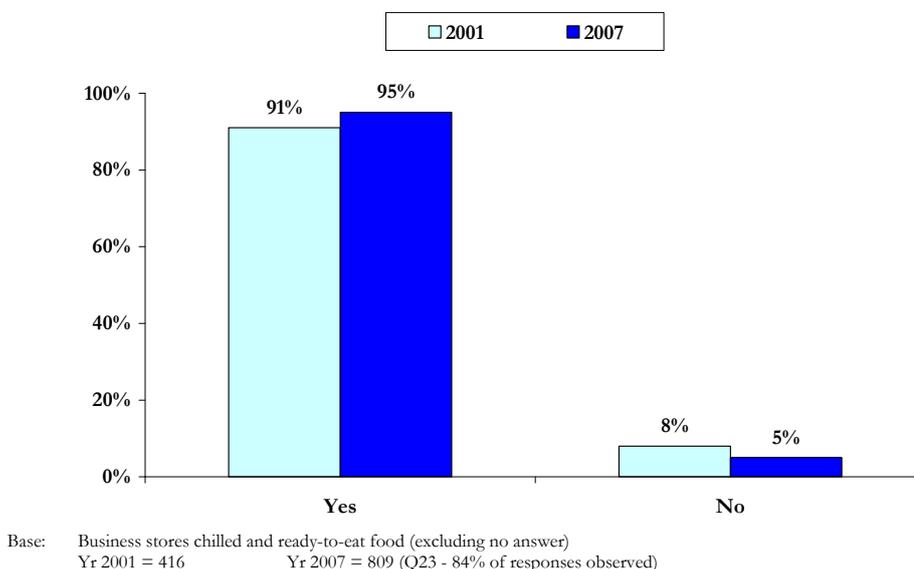### 7.2.2   *Food storage and protection from contamination*

In 2001 one in ten (8%) businesses storing raw food in the cool room did not have raw food separated appropriately from ready-to-eat food. Fewer businesses in 2007 (5%) were found to incorrectly separate raw and ready-to-eat food (Figure 81).

A higher proportion of small (5%) compared to large businesses (0%) and businesses without a food safety program (6%) than those with a program (2%) did not have raw food separated appropriately from ready-to-eat food.

Figure 81: Raw food separated in cool room

Q16 (2001): Raw food is separated from ready-to-eat food in the cool room
Q23 (2007): Raw food is separated from ready-to-eat food in the cool room

Base: Business stores chilled and ready-to-eat food (excluding no answer)
         Yr 2001 = 416   Yr 2007 = 809 (Q23 - 84% of responses observed)

Nineteen in twenty businesses (95%) storing raw food in a cool room had it separated appropriately from ready-to-eat food. This represents an increase from 2001 (92%).
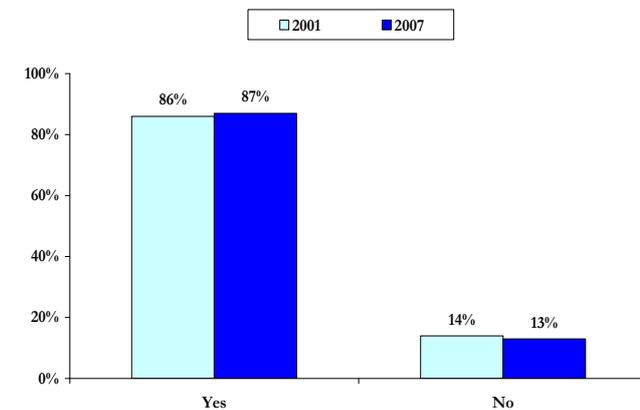
In both 2001 and 2007, one in seven businesses (14% in 2001 and 13% in 2007) that stored chilled food did not adequately protect the food in the cool room from contamination (Figure 82).

Businesses that were less likely to protect food in the cool room from contamination included:

➢ businesses located in Queensland (17%), particularly compared to New South Wales (7%) – and also higher in South Australia (17%) and the ACT (17%) although not statistically different to the national average given the lower sample sizes in these locations;

➢ bakeries (19%); and

➢ businesses in which English was not the main language spoken (22%) compared to those for which English was the main language (11%).

**Figure 82: Protected from contamination in cool room**

Q18 (2001): All food is protected from contamination in the cool room?

Q25 (2007): All food is protected from contamination in the cool room?

Base: Business stores chilled and ready-to-eat food (excluding no answer)
           Yr 2001 = 446   Yr 2007 = 881 (Q25 - 100% of responses observed)

Figure 83: Protected from contamination in cool room by location

Q25 (2007): All food is protected from contamination in the cool room?
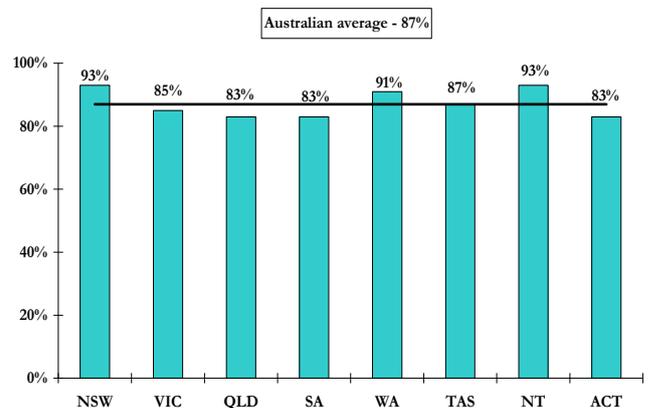
Base: Business stores chilled and ready-to-eat food
           NSW = 198   VIC = 194   QLD = 173   SA = 115
           WA = 117   TAS = 23*   NT = 30*   ACT = 35
Note: * small base

One in seven businesses (13%) that stored chilled food did not adequately protect the food from contamination in the cool room.

Similarly to 2001, one in twenty businesses that stored dry goods did not have adequate protection from contamination (6% in 2001 and 4% in 2007) (Figure 84).

Inadequate protection from contamination of dry goods was more common among:
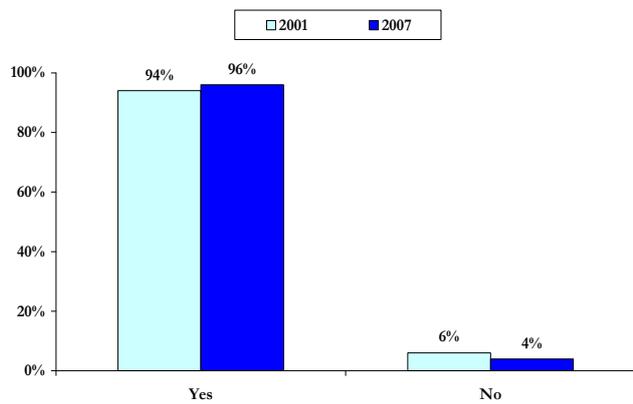
➢ bakery businesses (8%); and

➢ businesses in which English was not the main language spoken (10%) compared to those for which English was the main language (4%).

Fewer cases were found with pests in the dry goods in 2007 (1%) compared to 2001 (4%) (Figure 85).

Figure 84: Dry goods protected from contamination
Q19 (2001): Dry goods are protected from contamination?
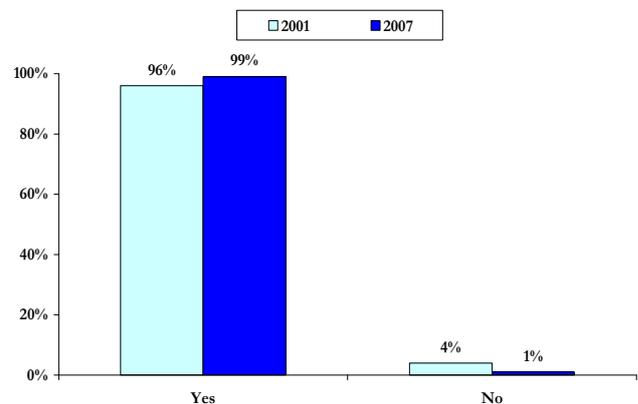*Q31 (2007): Dry goods are protected from contamination?*

Figure 85: Dry goods free from pests
Q20 (2001): Dry goods appear to be free from pests.
Q32 (2007): Dry goods appear to be free from pests

Base: Business stores dry goods (excluding no answer)
        Yr 2001 = 462   Yr 2007 = 897 (Q31 - 90% of responses observed)

Base: Business stores dry goods (excluding no answer)
        Yr 2001 = 458   Yr 2007 = 893 (Q32 - 91% of responses observed)

7.2.3   *Display and protection from contamination*

More businesses in 2007 (96%) compared to 2001 (91%) that displayed food adequately protected the food from contamination (Figure 86).

Figure 86: Protection of displayed food

Q30 (2001): Food on display is protected from contamination.

Q42 (2007): Food on display is protected from contamination

Base: Business displays food
Yr 2001 = 269   Yr 2007 = 653 (Q42 - 92% of responses observed)
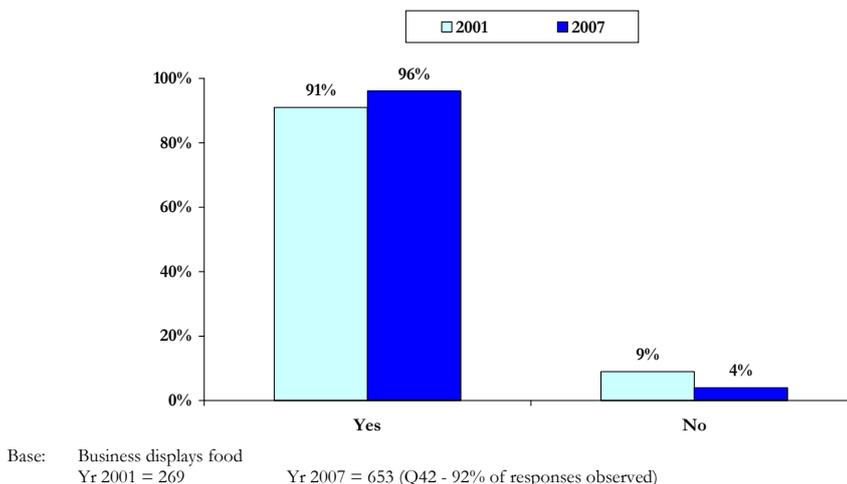
Fewer businesses in 2007 (59%) compared to 2001 (85%) that displayed ready-to-eat food intended for self service had the service area supervised by staff (Figure 87).

Displayed ready-to-eat food intended for self service was less often supervised in:

> businesses located in New South Wales (40%) – and Tasmania (40%) and the Australian Capital Territory (44%) but with low sample sizes - particularly compared to South Australia (82%) and Western Australia (78%); and

> bakery businesses (38%).

Figure 87: Displayed ready-to-eat food supervised by staff

Q31 (2001): Displayed ready-to-eat food intended for self-service is supervised by staff.

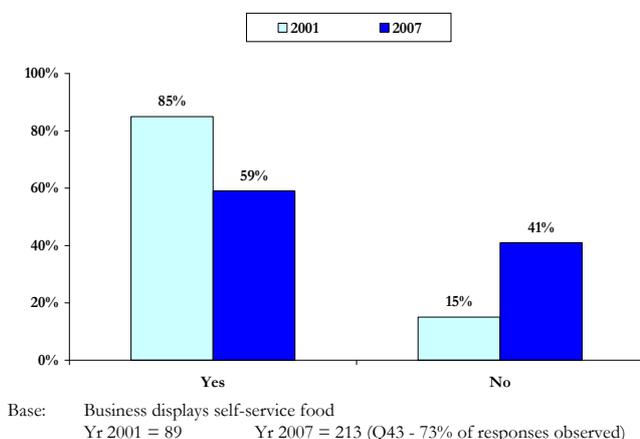*Q43 (2007): Displayed ready-to-eat food intended for self service supervised by staff*

Base: Business displays self-service food
Yr 2001 = 89   Yr 2007 = 213 (Q43 - 73% of responses observed)
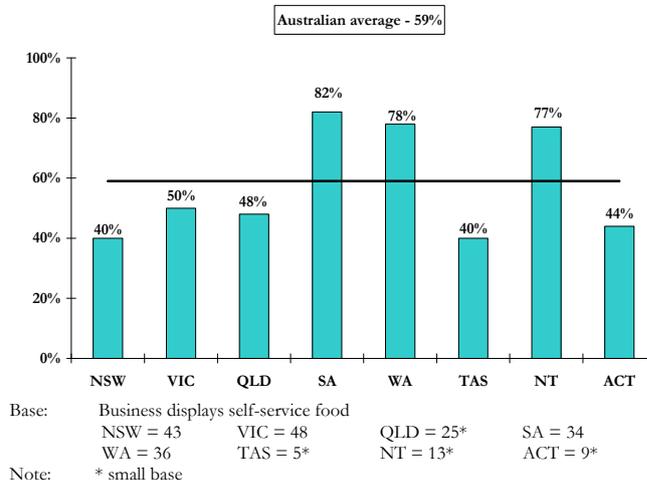
Figure 88: Displayed ready-to-eat food supervised by staff by location

Q43 (2007):   Displayed ready-to-eat food intended for self service supervised by staff

Base: Business displays self-service food
         NSW = 43   VIC = 48   QLD = 25*   SA = 34
         WA = 36   TAS = 5*   NT = 13*   ACT = 9*
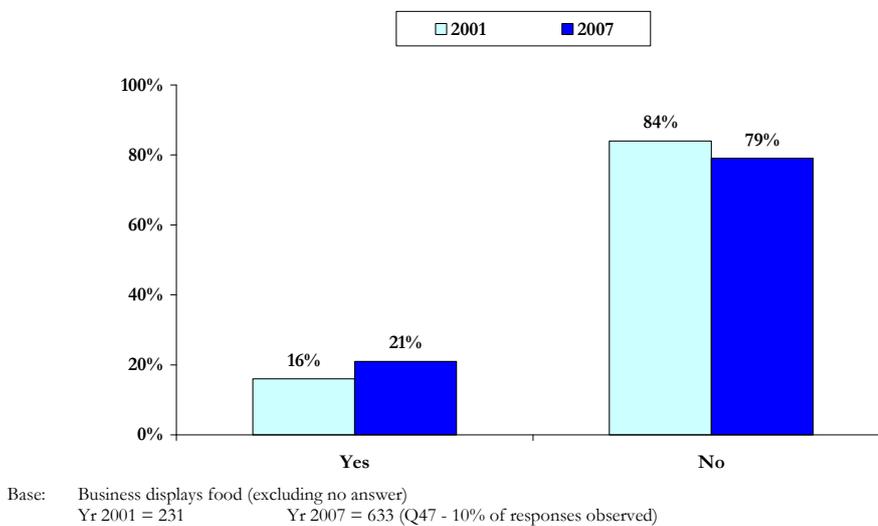Note: * small base

> More businesses in 2007 compared to 2001 that displayed self-serve ready-to-eat
> food did not have the service area supervised by staff (41% in 2007).

When displayed food was removed at the end of the day, slightly more businesses in 2007 (21%) compared to 2001 (16%) added that to the new batch of food for display the next day (Figure 89).

Figure 89: Food removed from display mixed with new food

Q34 (2001): Is food removed from display mixed with new batches of food for display on the next day?
Q47 (2007): Food from display mixed with new batches next day

Base: Business displays food (excluding no answer)
         Yr 2001 = 231   Yr 2007 = 633 (Q47 - 10% of responses observed)

> One in five businesses (21%) that removed food from display at the end of the day
> added it to the new batch for display the next day.

7.2.4   Processing of food and protection from contamination

Use of separate equipment

Of the business that handled raw and ready-to-eat food (87% in 2007), nine in ten (92%) used separate equipment for preparing and processing this food and a further 6% cleaned and sanitised the same equipment between uses (Figure 90). Therefore, in 2007 almost all businesses (98%) used separate equipment for preparing and processing food or cleaned and sanitised the same equipment. This represents an increase from 2001 where 91% of businesses were identified as using separate equipment or cleaned and sanitised between uses.

Figure 90: Separate equipment used for raw and ready-to-eat food

Q62 (2001): Separate equipment is used for preparing and processing raw and ready-to-eat food, or equipment is cleaned and sanitised between these uses?

Q75 (2007): Separate equipment used for raw and ready-to-eat food.

Q76 (2007): If the same equipment is used the equipment is cleaned and sanitised between uses.
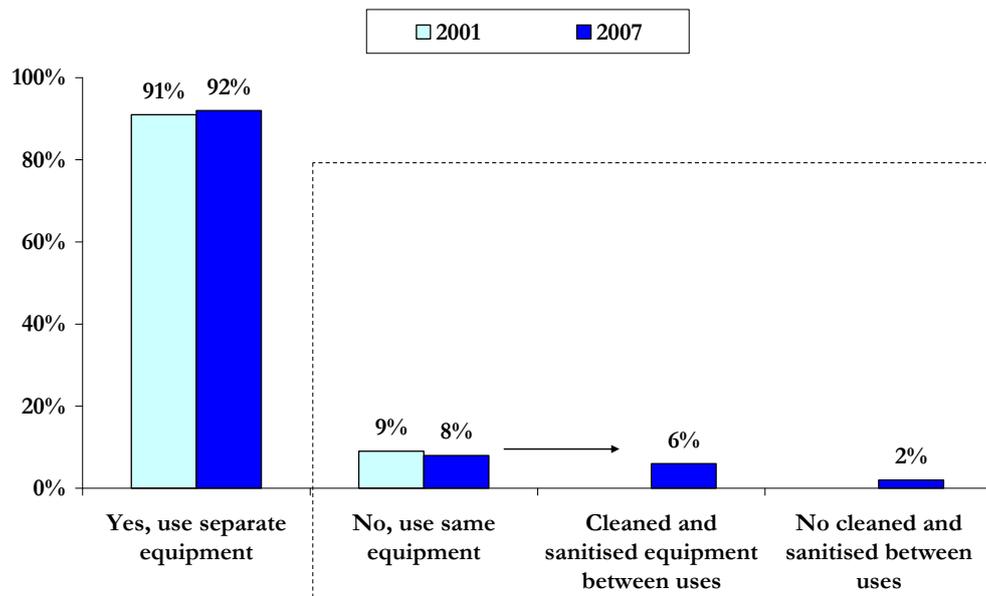
Base: Business handles raw and ready-to-eat food
         Yr 2001 = 413   Yr 2007 = 794 (Q75 - 43% of responses observed)
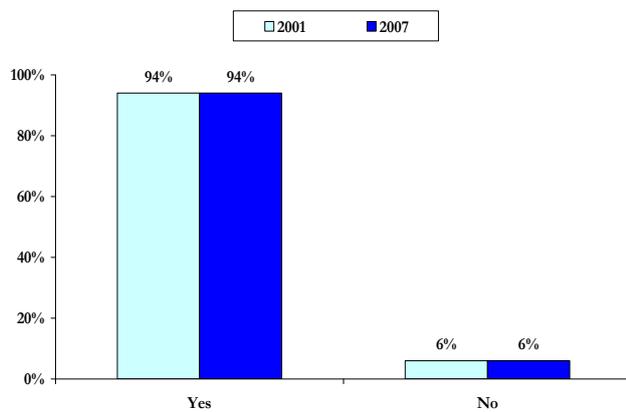
Use of utensils and gloves

In both 2001 and 2007, staff at most businesses used utensils or other barriers (e.g. tongs, gloves, etc.) when handling ready-to-eat food (94% each) (Figure 91).

More staff wore disposable gloves in 2007 (80%) compared to 2001 (68%). In both 2001 and 2007, just under one in ten businesses whose staff wore gloves did not change them when necessary (9% in 2001 and 7% in 2007) (Figure 92).

Figure 91: Hands are not used to handle food
Q64 (12001): Staff handle ready-to-eat food with utensils or other barriers (not hands)
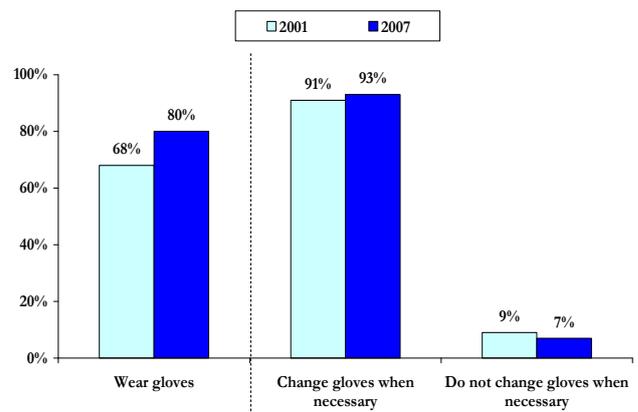*Q78 (2007): Staff handle ready-to-eat food with utensils or other barriers*

Figure 92: Use of gloves
Q65 (2001): Staff change gloves when necessary.
Q79 (2007): Staff change gloves when necessary

Base: Business handles ready-to-eat food
Yr 2001 = 450   Yr 2007 = 882 (Q78 - 71% of responses observed)

Base: All businesses
Yr 2001 = 483   Yr 2007 = 916
Staff wear gloves
Yr 2001 = 326   Yr 2007 = 737 (Q79 – 45% of responses observed)

> Staff at 6% of businesses did not use utensils or other barriers when handling food and 7% of staff who wore gloves did not change them when necessary.

Open wounds covered

Fewer businesses in 2007 (3%) compared to 2001 (6%) had staff who did not cover wounds appropriately (Figure 93).

Figure 93: Staff cover open wounds when necessary

Q76 (2001): Staff cover open wounds with a waterproof dressing.
Q90 (2007): Staff cover open wounds with a waterproof dressing
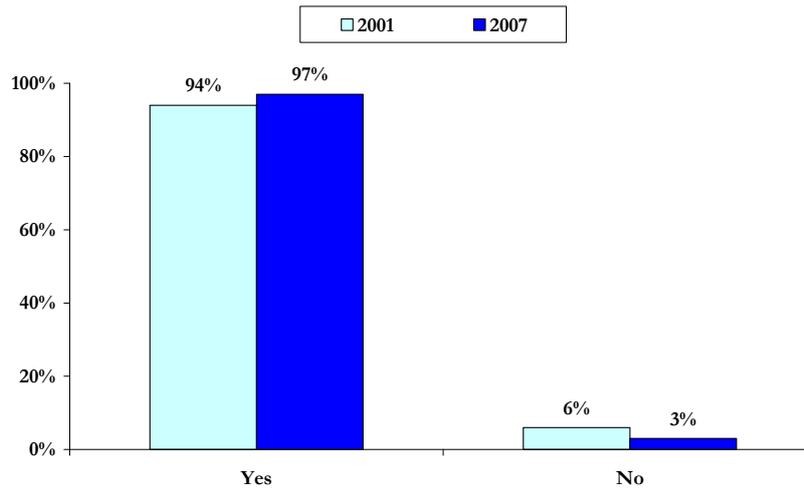
Base: All businesses (excluding no answer)
          Yr 2001 = 457   Yr 2007 = 903 (Q90 - 17% of responses observed)

7.2.5   *Transport and protection from contamination*

Nearly all businesses transporting food in 2001 and 2007 (20% in 2001 and 22% in 2007 transported food) had adequate protection from contamination during transportation (99% in 2001 and 98% in 2007) (Figure 94).

Figure 94: Transport of food

Q44 (2001): Food is protected from contamination during transportation
Q51 (2007): Food is protected from contamination during transportation

Base: Business transports food (excluding no answer)
Yr 2001 = 99   Yr 2007 = 185 (Q51 - 26% of responses observed)
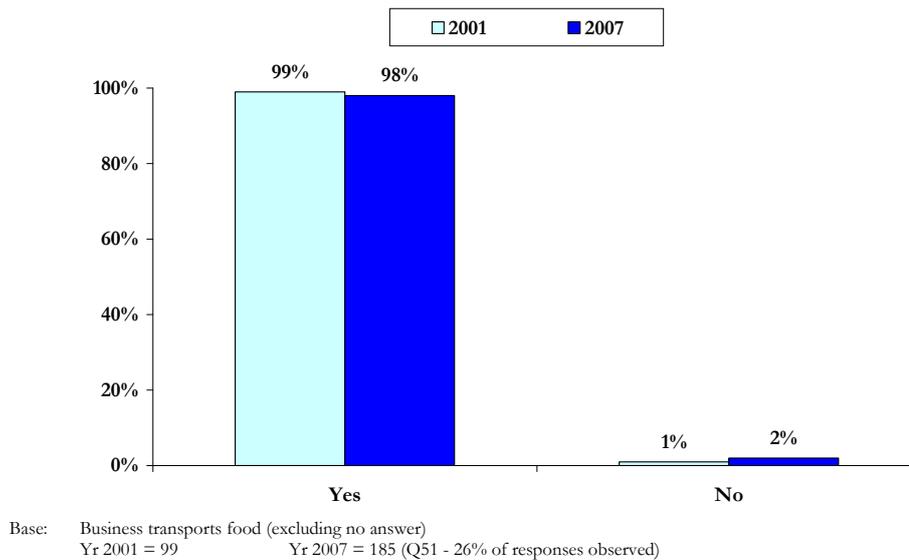
7.3   Personal hygiene and staff illness

Staff are a potential source of pathogenic micro organisms and foreign matter that could contaminate food. The contamination may be from the food handlers body such as intestinal, respiratory or skin micro organisms, or foreign material and micro organisms from clothing. Information was sought on hand washing practices and facilities and the work clothing of food handlers.

Businesses were also asked about their policy regarding staff who are unwell. The Food Safety Standards require that a food handler that knows or suspects they are suffering from a foodborne disease must not engage in any handling of food where there is a reasonable likelihood of food contamination as a result of the disease.

7.3.1   Hand washing facilities

Hand washing practices and ensuring that there are adequate facilities for hand washing are key components of personal hygiene. Information was sought on whether staff members wash their hands, which facilities they use and whether hand washing basins are available, are accessible and are suitably equipped with soap, warm running water and hand towels. EHOs were asked whether hand basins showed signs of recent use.

In 2007, more businesses provided sufficient hand washing facilities for staff (93%) compared to 2001 (83%). Even so, 7% of businesses did not have at least one hand washing facility within each food handling area (Figure 95):
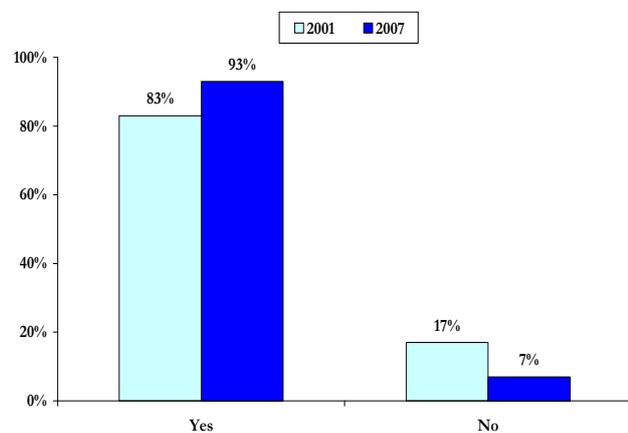
> ➤ fewer bakery businesses had sufficient hand washing facilities for staff (86%).

Businesses were also more likely in 2007 to have hand washing facilities accessible to employees and not blocked by equipment or located behind doors (89% in 2001 and 94% in 2007) – one in twenty (6%) did not have accessible hand washing facilities (Figure 96). Only 2% of businesses did not have sufficient and accessible hand washing facilities. Accessible hand washing facilities were less likely to be observed:

> ➤ in the ACT (85%) compared to the national average (94%);
> ➤ in bakery businesses (85%);
> ➤ among businesses that did not have a food safety program (93%) compared to businesses that did (96%); and
> ➤ in businesses in which English was not the main language spoken (88%) compared to those for which English was the main language (95%).

Figure 95: Sufficient hand washing facilities
Q69 (2001): Sufficient hand washing facilities are provided.
Q83 (2007): Sufficient hand washing facilities are provided

Figure 96: Accessible hand washing facilities
Q70 (2001):   Hand washing facilities are accessible to employees
Q84 (2007):   Hand washing facilities are accessible to employees

Base: All businesses (excluding no answer)
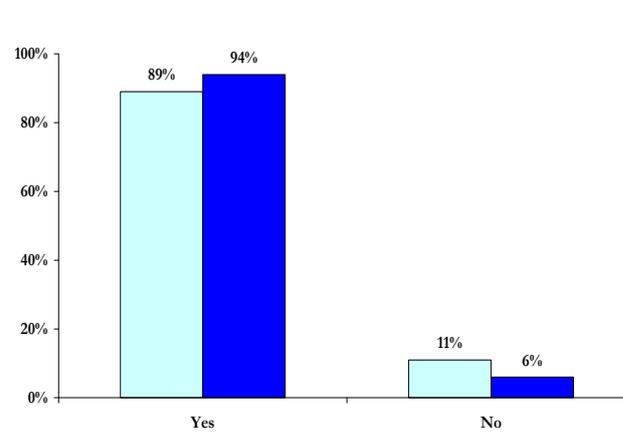
Base: All businesses (excluding no answer)

Yr 2001 = 476   Yr 2007 = 913 (Q83 - 89% of responses observed)   Yr 2001 = 467   Yr 2007 = 913 (Q84 - 90% of responses observed)

> More businesses in 2007 compared to 2001 provided sufficient hand washing facilities for staff and had hand washing facilities accessible to employees. Even so, a minority did not provide sufficient hand washing facilities for staff (7%) or have hand washing facilities accessible to employees (6%).

Under one in ten (7%) businesses did not have hand washing facilities supplied with soap or hand cleanser (also 7% in 2001) (Figure 97). Soap or hand cleanser in hand washing facilities was less likely to be observed in:

➢ Queensland businesses (89%); and

➢ businesses in which English was not the main language spoken (83%) compared to those for which English was the main language (94%).

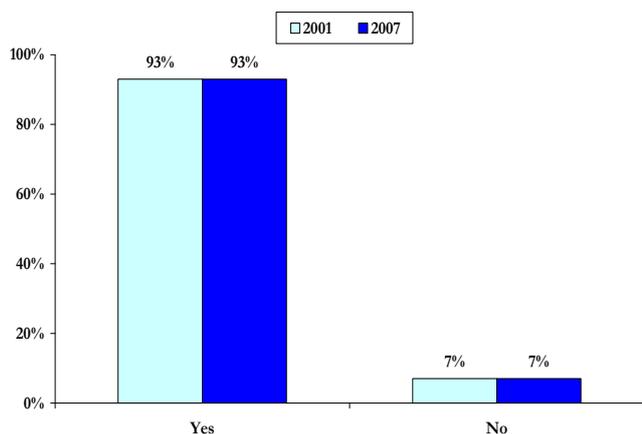One in ten businesses (10%) did not have warm running water in the hand washing facilities, which was an improvement since 2001 (15%) (Figure 98). Warm running water in the hand washing facilities was less likely to be observed in:

➢ Victorian businesses (82%), particularly compared to those in New South Wales (96%); and

➢ metropolitan (88%) compared to non-metropolitan businesses (93%).

Figure 97: Soap or hand cleanser supplied

Q71 (2001): Hand washing facilities are supplied with soap or hand cleanser

Q85 (2007): Hand washing facilities are supplied with soap/hand cleanser

Figure 98: Warm running water available

Q72 (2001): Hand washing facilities have warm running water

Q87 (2007): Hand washing facilities have warm running water

Base: All businesses (excluding no answer)
        Yr 2001 = 470   Yr 2007 = 912 (Q85 - 90% of responses observed)
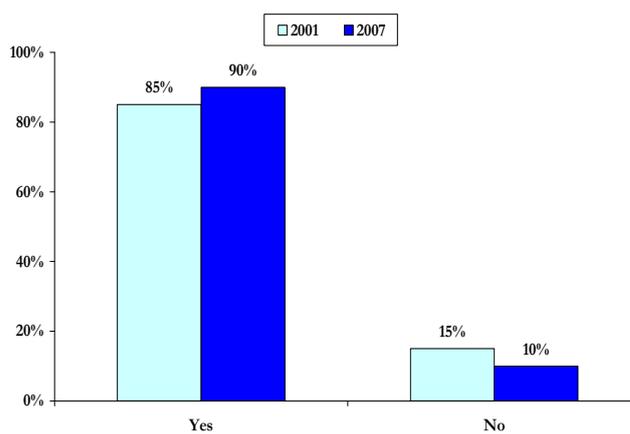
Base: All businesses (excluding no answer)
        Yr 2001 = 464   Yr 2007 = 909 (Q87 - 84% of responses observed)

More businesses now supplied single use towels in the hand washing facilities (85%) compared to 2001 (79%), although 15% still did not have single use towels (Figure 99). Single use towels were less likely to be found in:

> ➤ businesses in which English was not the main language spoken (77%) compared to those for which English was the main language (86%).

Figure 99: Single use towels supplied

Q73 (2001): Hand washing facilities are supplied with single use towels
Q88 (2007): Hand washing facilities are supplied with single use towels
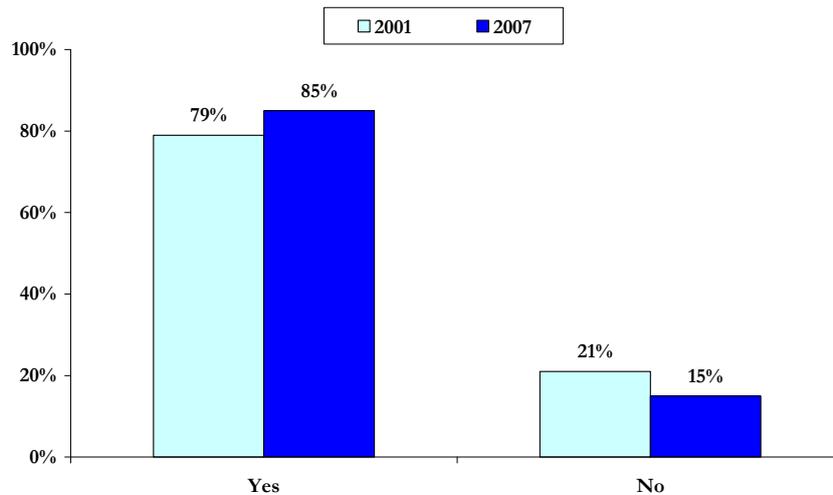
Base: All businesses (excluding no answer)
             Yr 2001 = 469   Yr 2007 = 907 (Q88 - 91% of responses observed)

7.3.2   *Hands washed when necessary*

EHOs were required to assess if staff washed their hands when necessary. This was asked as a single 'yes/no' question in 2001, whereas five scenarios were given in 2007. Notably, a low proportion of hand washing practices were observed in the short visit by the EHOs in 2007 – between 7% and 18% observed for each activity.

In 2001, one in ten (9%) businesses had staff who did not wash their hands when necessary. In 2007, 80% of businesses had staff who washed their hands on all occasions. More specifically (Figure 100):

> ➢ 99% washed hands immediately after using the toilet;
> ➢ 96% washed hands between working with raw and ready-to-eat food;
> ➢ 96% washed hands after smoking, coughing, sneezing, blowing nose, eating or drinking;
> ➢ 95% washed hands before handling exposed food; and
> ➢ 94% washed hands after touching hair, scalp or body opening.

Correct hand washing was less likely to be practiced in businesses for which English was not the main language compared to businesses in which English was the main language, particularly in regard to:

> ➢ working with raw and ready-to-eat food (91% non-English and 97% English speaking); and
> ➢ after touching hair, scalp or body opening (88% non-English and 94% English speaking).

Figure 100: Staff wash hands when necessary

Q80 (2007): Staff wash hands when necessary
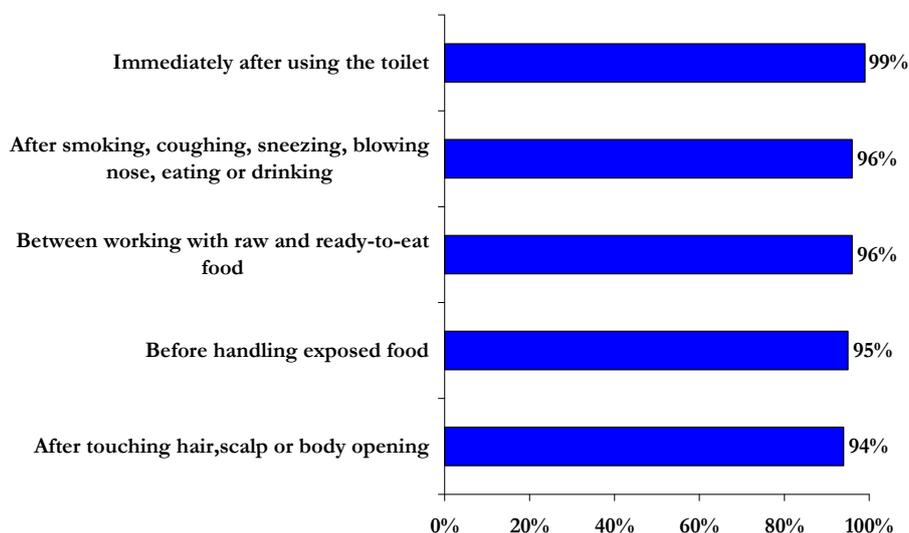
Base: All businesses (excluding no answer)
          Yr 2007 = 827 to 897 (Q80 - between 7% and 18% of responses observed for each activity)

7.3.3   *Hand washing practices*

More businesses in 2007 (88%) compared to 2001 (80%) had staff who washed their hands in the designated hand washing facility. Just over one in ten (12%) businesses had staff who did not wash their hands in the appropriate hand washing facility (e.g. they used the equipment washing sink) (Figure 101).

Use of designated hand washing facilities was less common in:

> ➢ bakery businesses (81%); and

> ➢ businesses in which English was not the main language spoken (73%) compared to those for which English was the main language (90%).

A similar proportion of businesses in 2007 (87%) and 2001 (84%) had staff who washed and dried their hands correctly, that is, using soap and warm running water and using a single use towel. However, one in eight (13%) businesses still had staff who did not correctly wash and dry their hands (Figure 102).

Correct washing and drying of hands was less likely common among:

> ➢ businesses in which English was not the main language spoken (75%) compared to those for which English was the main language (89%).

Figure 101:	**Staff wash their hands in designated facilities**	**Figure 102:**	**Staff wash & dry hands correctly**
Q67 (2001):	*When staff wash hands, they use the designated hand washing facilities.*	*Q68 (2001):*	*When staff wash hands, they wash and dry their hands correctly*
Q81 (2007):	*Staff use designated hand washing facilities*	*Q82 (2007):*	*Staff wash and dry their hands correctly*
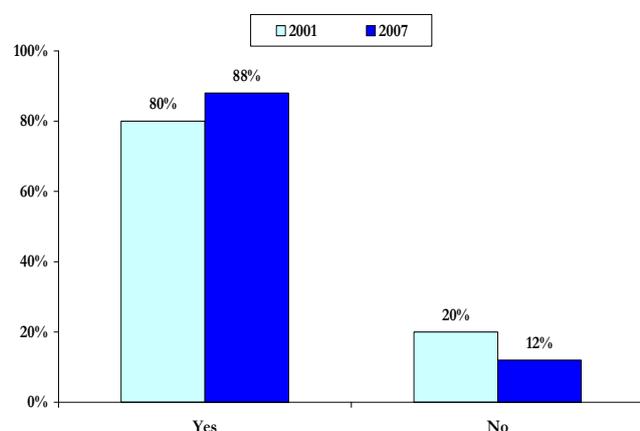
Base: All businesses (excluding no answer)
         Yr 2001 = 465   Yr 2007 = 910 (Q81 - 52% of responses observed)
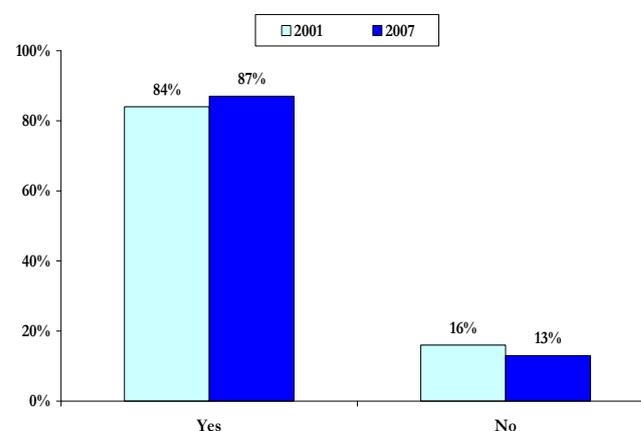
Base: All businesses (excluding no answer)
         Yr 2001 = 462   Yr 2007 = 907 (Q82 - 43% of responses observed)

A similar proportion of businesses in 2001 and 2007 had hand washing facilities that did not show evidence of recent use (15% and 16% respectively) (Figure 103).

Evidence of recent use in hand washing facilities was less common in:

> ➢ Queensland businesses (74%), particularly compared to Western Australian (92%) and New South Wales (90%) businesses – the incidence was also lower in the ACT (74%) and higher in Tasmania (100%) and the Northern Territory (97%) although these were not statistically significant due to the low sample sizes; and

> ➢ businesses in which English was not the main language spoken (70%) compared to those for which English was the main language (85%).

Figure 103: Recent use of hand washing facilities

Q74 (2001): Hand washing facilities show evidence of recent use.
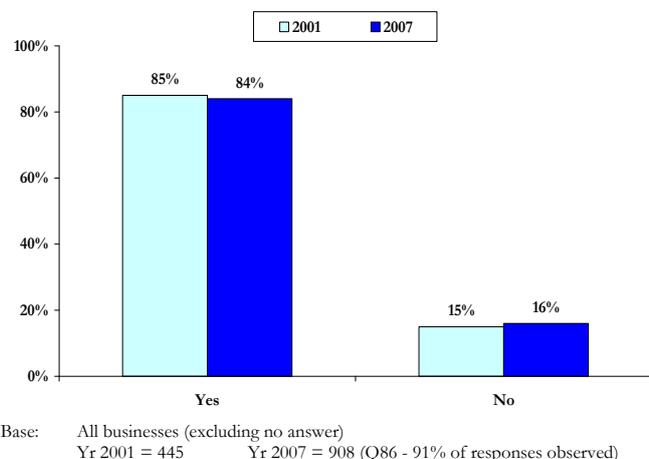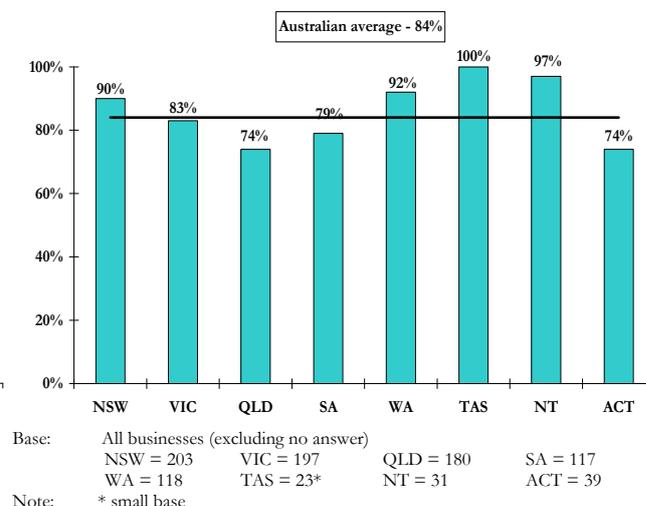*Q86 (2007): Hand washing facilities show evidence of recent use*

Base: All businesses (excluding no answer)
       Yr 2001 = 445   Yr 2007 = 908 (Q86 - 91% of responses observed)

Figure 104: Recent use of hand washing facilities by location

Q86 (2007): Hand washing facilities show evidence of recent use

Base: All businesses (excluding no answer)
       NSW = 203   VIC = 197   QLD = 180   SA = 117
       WA = 118   TAS = 23*   NT = 31   ACT = 39
Note: * small base

7.3.4   Clothing

Staff were observed as to whether they were wearing "clean" outer clothing, that is, appropriate to the food handling task in question. A minority in both 2001 (4%) and 2007 (3%) were found not to be wearing clean outer clothing (Figure 105).

In both 2001 and 2007, just under one in ten businesses did not have personal clothing and items stored appropriately (7% in 2001 and 8% in 2007) (Figure 106).

Appropriate storage of personal clothing and items was less common in:

➢ Western Australian businesses (85%);

➢ businesses in which English was not the main language spoken (83%) compared to those for which English was the main language (93%); and

➢ businesses which did not have a food safety program (91%) compared to those that did (95%).

Figure 105:   Staff wear clean outer clothing

Q63 (2001): Staff preparing and processing food are wearing 'clean' outer clothing
Q77 (2007): Food preparation staff wearing clean outer clothing

Base: All businesses (excluding no answer)
       Yr 2001 = 455   Yr 2007 = 912 (Q77 - 87% of responses observed)
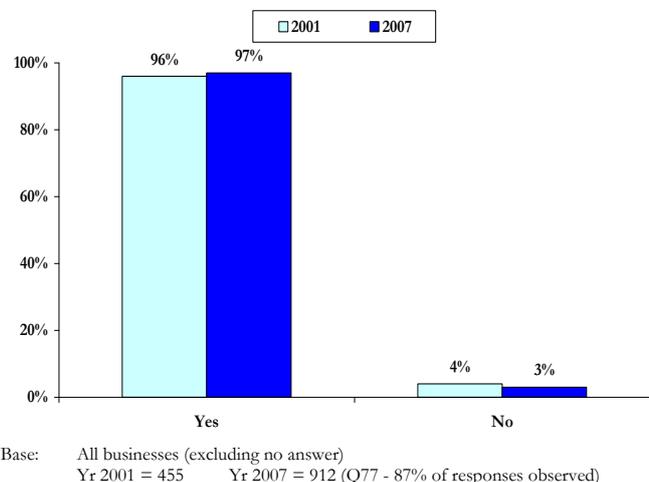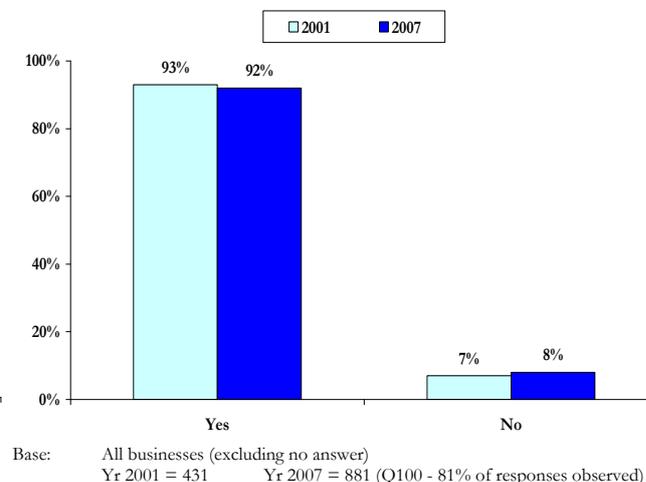
Figure 106:   Personal clothing stored appropriately

Q85 (2001): Personal clothing is stored appropriately
Q100 (2007): Personal clothing is stored appropriately

Base: All businesses (excluding no answer)
       Yr 2001 = 431   Yr 2007 = 881 (Q100 - 81% of responses observed)

7.3.5   *Staff sickness policies*

More businesses had a policy related to staff who were unwell in 2007 (89%) compared to 2001 (79%). One in ten (11%) businesses did not have a policy for unwell staff (Figure 107).

Staff sickness policies were more common in:

> ➢ businesses in which English was the main language spoken (90%) compared to those for which English was not the main language spoken (83%); and

> ➢ businesses that had a food safety program (96%) compared to those without (85%).

Figure 107: Policy for unwell staff

Q75 (2001): The business has a policy relating to staff who are unwell
Q89 (2007): Business has a policy relating to staff who are unwell

Base: All businesses (excluding no answer)
Yr 2001 = 468   Yr 2007 = 908 (Q89 - 9% of responses observed)
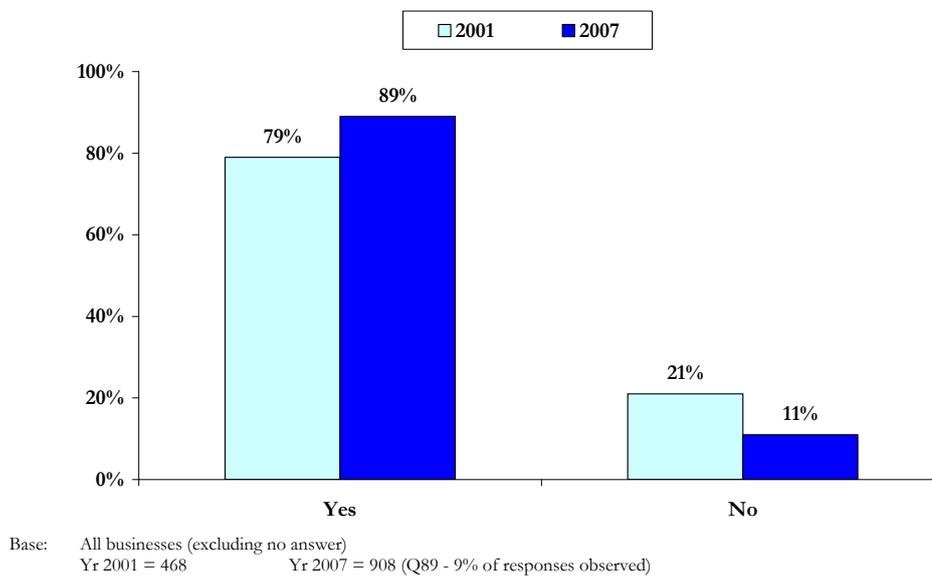
7.4 Cleaning and sanitation

The Observational Survey identified whether businesses cleaned and sanitised eating and drinking utensils and food contact surfaces using dishwashers (commercial and domestic), hot glass washers, or whether they cleaned and sanitised manually. A sanitising temperature of 77ºC or above, for the correct amount of time, is required to kill micro organisms. Lower sanitising temperatures can be used provided that the length of time is increased.

If such equipment was used, the EHO identified the operating temperature of the equipment. In 2001, the EHO recorded if the dishwasher or hot glass washer was operating at the correct temperature. In 2007 the EHO had to record the actual sanitising temperature of the equipment.

The temperature of the water used in manual sanitising was also obtained and whether the business used chemical sanitisers.

7.4.1 Commercial dishwashers

Over half (56%) of the businesses in 2007 used reusable eating and drinking utensils. These businesses were asked about the use of commercial dishwashers, domestic dishwashers and hot water glass washers.

In 2007, of the businesses that used reusable eating and drinking utensils, two in three (65%) used a commercial dishwasher to wash and sanitise utensils. This represents a significant increase from the 30% that used a commercial dishwasher in 2001 (Figure 108).

Businesses that were less likely to use a commercial dishwasher included:

➢ bakeries (45%);

➢ small (61%) compared to large businesses (82%);

➢ businesses in which English was not the main language spoken (46%) compared to those for which English was the main language (66%); and

➢ businesses which did not have a food safety program (60%) compared to those that did (69%).

Figure 108: Use commercial dishwasher

Q48 (2001): Business uses a commercial dishwasher to wash and sanitise eating and drinking utensils and food contact surfaces

Q65 (2007): Does the business use a commercial dishwasher to wash and sanitise utensils?
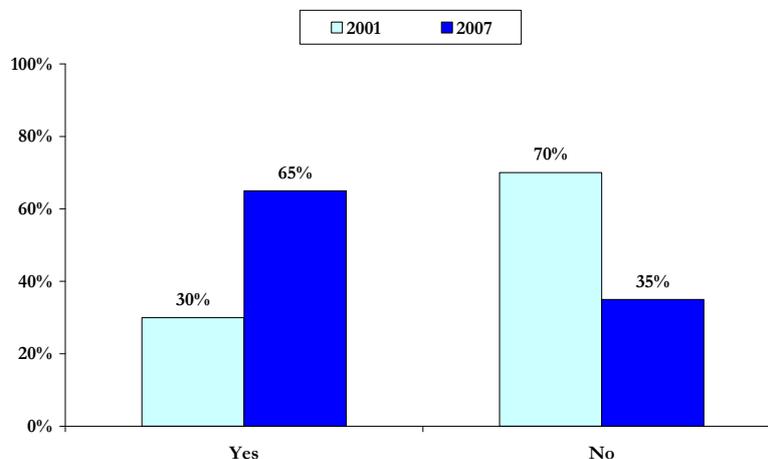
Base: 2001 – Dishwasher appropriate to business
2007 – Businesses uses reusable eating and drinking utensils (excluding no answer)
Yr 2001 = 396   Yr 2007 = 508 (Q65 - 68% of responses observed)

> Commercial dishwashers were more likely to be used in 2007 compared to 2001 for washing and sanitising reusable eating and drinking utensils (30% in 2001 and 65% in 2007).

In 2001, the EHO was asked to identify if the commercial dishwasher was operating at the correct sanitising temperature. A "correct" sanitising temperature was deemed to be 77ºC or above. The question was altered in 2007 with the EHO required to determine the sanitising temperature of the commercial dishwasher. To be comparable with the 2001 survey, 77ºC or above was used as the "correct" temperature for operation.

Among businesses that used a commercial dishwasher, fewer identified a sanitising temperature of 77ºC or above in 2007 (62%) compared to 2001 (83%). In 2007, three in five (62%) businesses had a sanitising temperature in their commercial dishwasher of 77ºC or above, for one in five (19%) a temperature under 77ºC was identified and one in five (18%) could not determine the sanitising temperature (Figure 109).

Among the businesses using a commercial dishwasher with a sanitising temperature under 77ºC (19%), the length of the sanitising cycle was most often 1 to 2 minutes (57%); for another 15% it was 3 to 4 minutes; and a sanitising cycle of 5 minutes or more was found for 16% with a sanitising temperature under 77ºC (Figure 110).

Figure 109: Correct sanitising temperature

Q49 (2001): Commercial dishwashers operates at the correct sanitising temperature
Q66a (2007): What is the sanitising temperature of the commercial dishwasher?
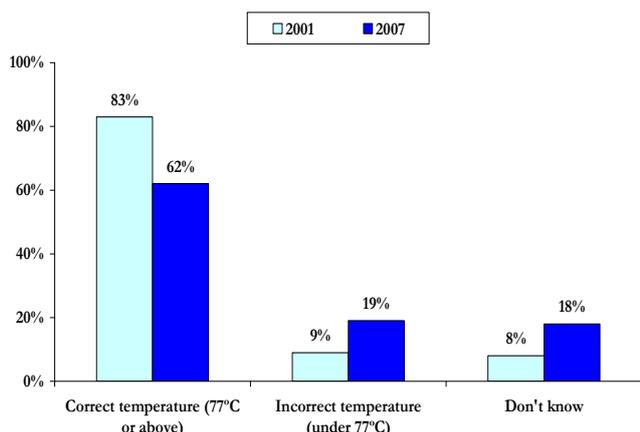
Base: Businesses uses commercial dishwasher
         Yr 2001 = 120   Yr 2007 = 329

Figure 110: Length of sanitising cycle for a sanitising temperature under 77ºC

Q66b (2007): What is the length of the sanitising cycle of the commercial dishwasher?
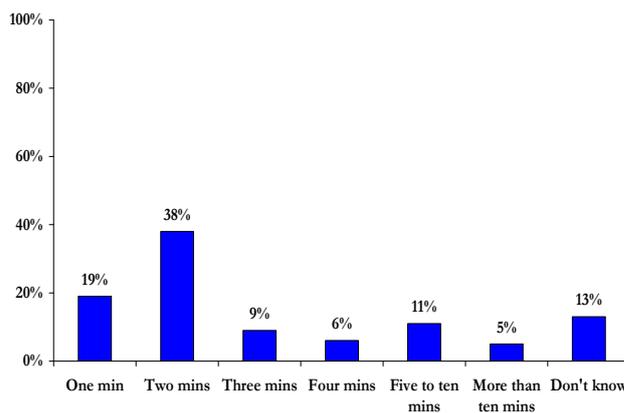
Base: 2007 - Businesses uses commercial dishwasher and sanitising temperature under 77ºC
         Yr 2007 = 64

7.4.2   *Domestic dishwashers*

Only a minority (7%) of businesses using reusable eating and drinking utensils in 2007 used a domestic dishwasher for washing and sanitising eating and drinking utensils and fewer compared to 2001 (13%) (Figure 111).

The sanitising temperature could not be determined in half (47%) of the businesses that used a domestic dishwasher. Of the remainder a sanitising temperature under 77ºC was more often identified (36%) than 77ºC or above (17%).

Among the businesses using a domestic dishwasher with a sanitising temperature of under 77ºC, for half (54%) the cycle took more than 10 minutes; for 38% the cycle was between one and three minutes and the length of the sanitising cycle could not be determined for 8% (equating to 1 respondent).

Figure 111: Use domestic dishwasher

Q51 (2001): Business uses a domestic dishwasher to wash and sanitise eating and drinking utensils and food contact surfaces

Q67 (2007): Does the business use a domestic dishwasher to wash and sanitise utensils?
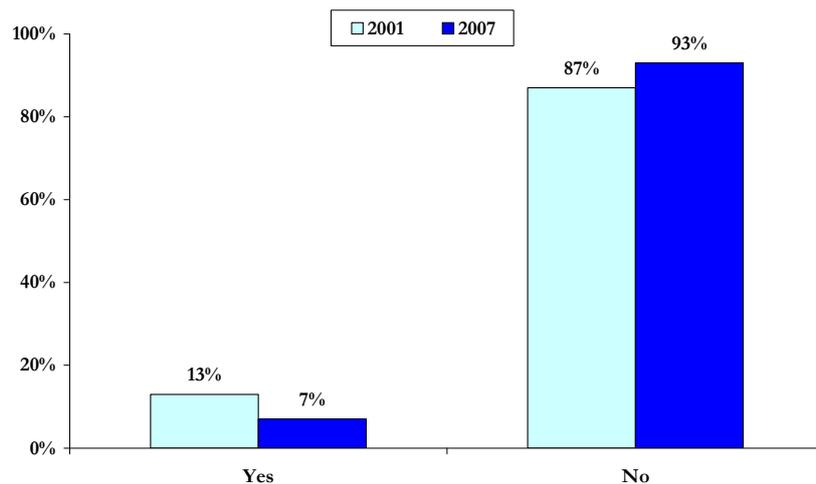
Base: 2001 – Dishwasher appropriate to business
2007 - Businesses uses reusable eating and drinking utensils (excluding no answer)
Yr 2001 = 374   Yr 2007 = 484 (Q67 - 48% of responses observed)

Domestic dishwashers were less likely to be used in 2007 compared to 2001 for washing and sanitising reusable eating and drinking utensils (13% in 2001 and 7% in 2007).
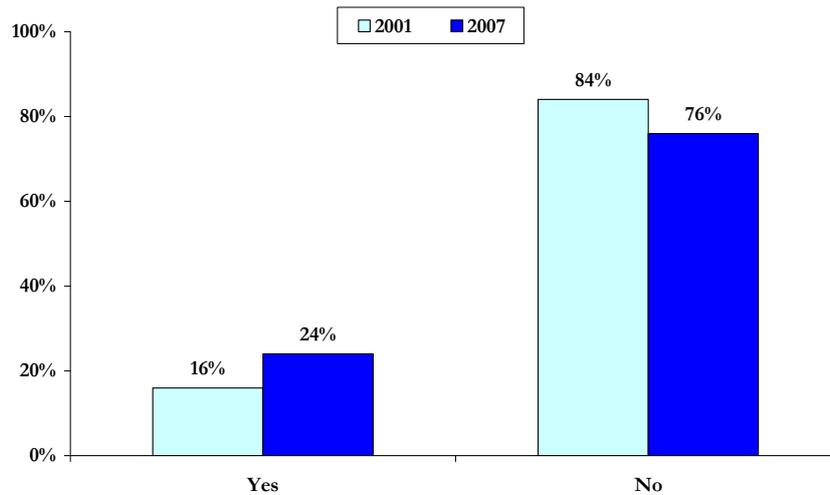
7.4.3   *Hot water glass washers*

One in four (24%) businesses using reusable eating and drinking utensils used hot water glass washers to wash and sanitise glasses. This represents a significant increase from the 16% that used hot water glass washers in 2001 (Figure 112).

Figure 112: Use a hot water glass washer

Q54 (2001): The business uses glass washers to sanitise using hot water
Q69 (2007): Does the business use a hot glass washer to wash and sanitise glasses?

Base: 2001 – Hot water glass washer appropriate to business
2007 – Businesses uses reusable eating and drinking utensils (excluding no answer)
Yr 2001 = 364   Yr 2007 = 497 (Q69 - 46% of responses observed)

Hot water glass washers were more likely to be used in 2007 compared to 2001 for washing and sanitising glasses (16% in 2001 and 24% in 2007).

In 2001, the EHO was asked to identify if the hot water glass washer was operating at the correct sanitising temperature. A "correct" sanitising temperature was deemed to be 77°C or above. The question was altered in 2007 with the EHO required to determine the sanitising temperature of the hot water glass washer. To be comparable with the 2001 survey, 77°C or above was used as the "correct" temperature for operation.

Among businesses that used hot water glass washers, fewer identified a sanitising temperature of 77°C or above in 2007 (39%) compared to 2001 (68%). However, it should be noted that the proportion of businesses for which an answer was not recorded increased between 2001 and 2007 (to 40%). In 2007, two in five (39%) businesses operated their hot water glass washer at 77°C or above, one in five (21%) operated the hot water glass washer at under 77°C (Figure 113).

Among the businesses using hot water glass washers with a sanitising temperature of under 77°C, the length of the sanitising cycle was most often 1 to 2 minutes (68%) – 12% could not determine the length of the sanitising cycle for the hot water glass washer (Figure 114).

Figure 113: Correct sanitising temperature for glass washer

Q55 (2001): *Glass washers operate at the correct temperature*
Q70a (2007): *What is the sanitising temperature of the hot water glass washer?*
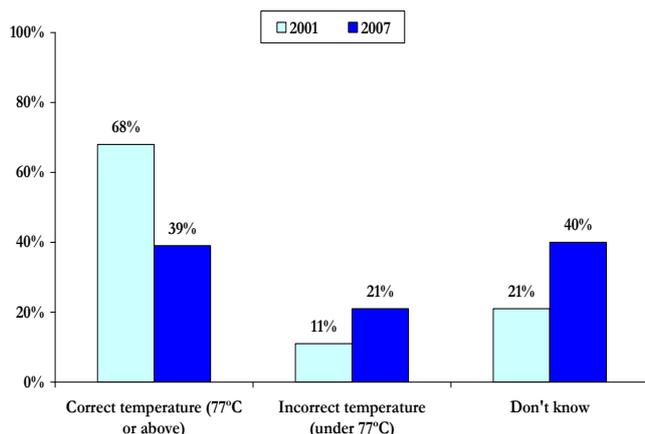
Base: Business uses hot water glass washers
          Yr 2001 = 38   Yr 2007 = 121

Figure 114: Temperature and length of sanitising cycle for glass washer

Q70b (2007): *What is the length of the sanitising cycle of the hot water glass washer?*
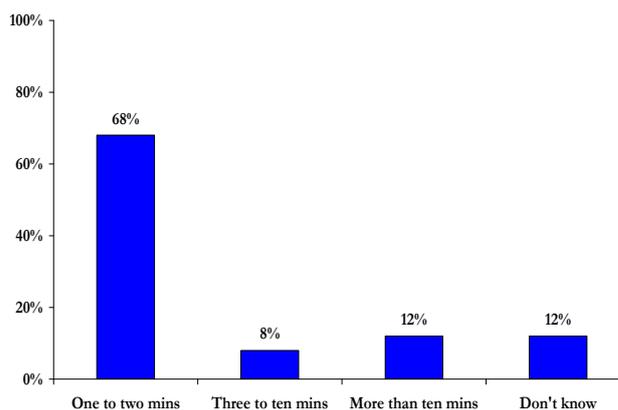
Base: 2007 - Businesses uses hot water glass washers and sanitising temperature under 77°C
          Yr 2007 = 25*
Note: * small base

7.4.4   *Sanitising equipment*

Business can either sanitise equipment using a chemical sanitiser or they can sanitise manually using hot water. A sanitising temperature of 77°C or above is required for the correct amount of time to kill micro organisms.

Chemical sanitisers

More businesses used chemical sanitisers for equipment in 2007 (82%) compared to 2001 (76%). Less than one in five (18%) did not use chemical sanitisers (Figure 115).

Chemical sanitisers were less likely to be used in:

- New South Wales (75%) and the ACT (67%) compared to other States;
- small (81%) compared to large businesses (91%);
- non-manufacturers (81%) compared to manufacturers (90%);
- non-caterers (80%) compared to caterers (90%);
- businesses in which English was not the main language spoken (66%) compared to those for which English was the main language (84%); and
- businesses which did not have a food safety program (78%) compared to those that did (90%).

Figure 115:   Chemical sanitisers used
Q57 (2001): The business uses chemical sanitisers for some or all of its equipment
Q71 (2007): Use chemical sanitisers for equipment

Figure 116:   Chemical sanitisers used by location
Q71 (2007):   Use chemical sanitisers for equipment
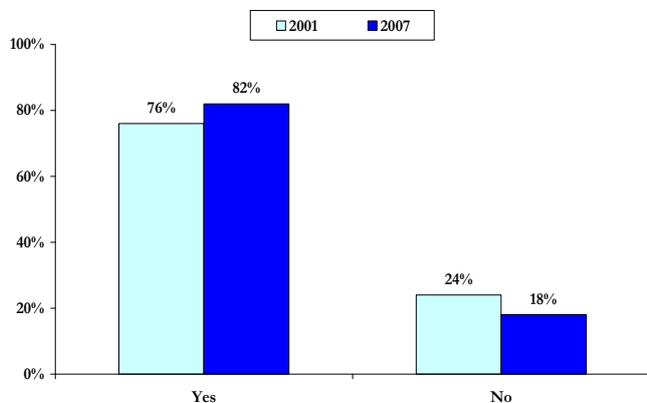
Base: All businesses (excluding no answer)
          Yr 2001 = 450   Yr 2007 = 907 (Q71 - 47% of responses observed)
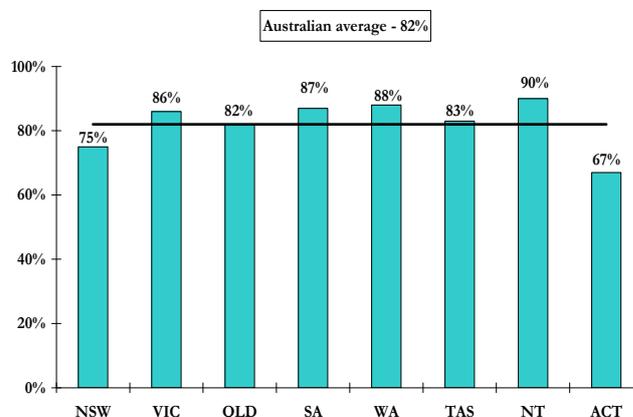
Base: All businesses (excluding no answer)
          NSW = 202   VIC = 195   QLD = 181   SA = 118
          WA = 119   TAS = 23*   NT = 30*   ACT = 39
Note: * small base

More businesses used chemical sanitisers for equipment in 2007 compared to 2001 (76% in 2001 and 82% in 2007).

In 2007, of the 82% of businesses that used chemical sanitisers for equipment, under one in ten (7%) did not use them appropriately (i.e. correct concentrations of the right sanitisers were not used) (Figure 117).

Figure 117: Appropriate use of sanitisers

Q58 (2001): Chemical sanitisers are used appropriately

Q72 (2007): Are chemical sanitisers are used appropriately?
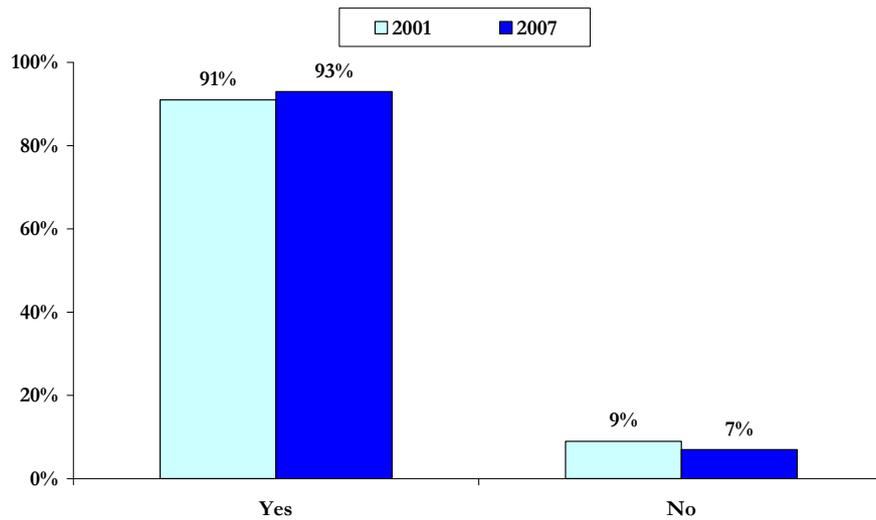
Base: Businesses using chemical sanitisers for equipment (excluding no answer)
          Yr 2001 = 327   Yr 2007 = 723 (Q72 - 30% of responses observed)

Manually sanitising using hot water

In 2007, three in ten businesses (31%) manually sanitised some of its equipment with hot water (without chemicals). This represents a significant decrease from the 58% reported in 2001 (Figure 118). In 2007, of the 18% of businesses that did not use chemical sanitisers for equipment, half (55%) manually sanitised some equipment with hot water. Overall, 91% of business sanitised equipment with chemicals or manually with hot water.

Manual sanitising of equipment was:

➢ more common in New South Wales (40%) and the ACT (48%) – both of which were less likely to use chemical sanitisers - and less common in Victoria (21%) and South Australia (18%). Half (52%) of Tasmanian businesses manually sanitised equipment although due to the low sample this was not significantly different to the national average; and

➢ less common among businesses with a food safety program (22%) compared to those that did not have a program (36%).

Figure 118: Equipment sanitised manually	**Figure 119: Equipment sanitised manually by location**
Q59 (2001): Business sanitises all or some of its equipment and surfaces manually using hot water (without chemicals) e.g. in a sink.	*Q73 (2007): Sanitises some equipment manually with hot water without chemicals.*
Q73 (2007): Sanitises some equipment manually with hot water without chemicals.	

Base: All businesses (excluding no answer)
         Yr 2001 = 457   Yr 2007 = 908 (Q73 - 15% of responses observed)

Base: All businesses (excluding no answer)
         NSW = 202   VIC = 197   QLD = 181   SA = 117
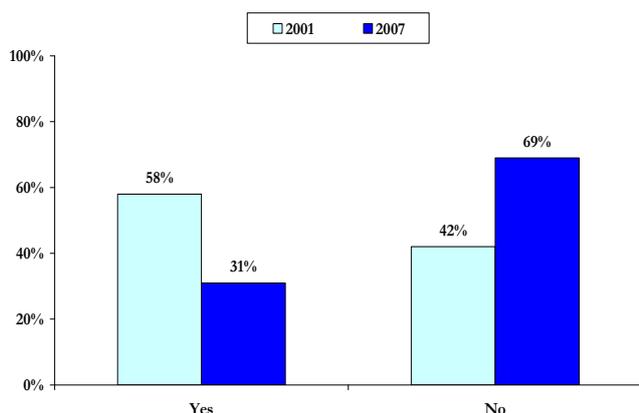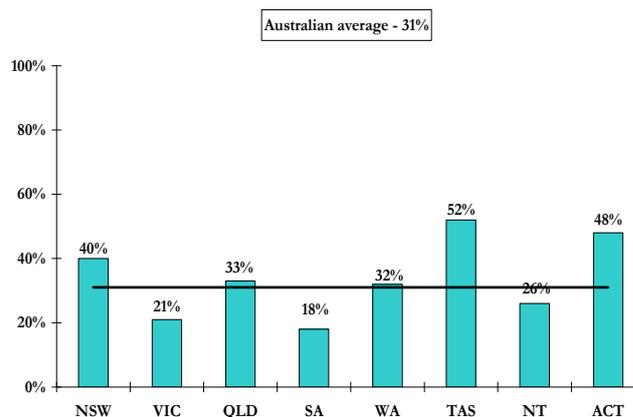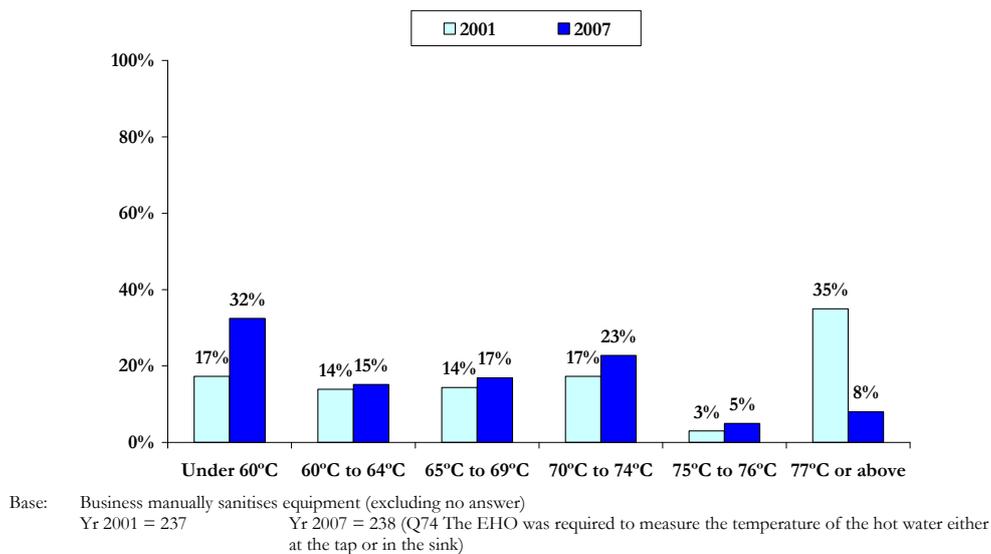   WA = 117   TAS = 23*   NT = 31   ACT = 40
Note: * small base

In 2007, very few of the 31% of businesses that indicated that they manually sanitised using hot water had a water temperature of 77ºC or more that was capable of sanisiting the equipment (8%). The recorded temperature of hot water used for sanitising was lower in 2007 compared to 2001 (Figure 120).

Figure 120: Temperature of hot water used to sanitise manually

Q60 (2001): If business manually sanitises using hot water, the temperature of the hot water used is 77°C or above

Q61(2001): Record the temperature of the hot water (either at the tap or in the sink as appropriate).

Q74 (2007): Record the temperature of the hot water: either at the tap or in the sink as appropriate.

Base: Business manually sanitises equipment (excluding no answer)
Yr 2001 = 237 Yr 2007 = 238 (Q74 The EHO was required to measure the temperature of the hot water either at the tap or in the sink)

Fewer businesses manually sanitised equipment in 2007 compared to 2001 (58% in 2001 and 31% in 2007) and of those that did, very few (8%) did so at a temperature that was capable of sanitising the equipment.

7.5 General assessment

The Observational Survey identified some general information about the premises of food businesses.

7.5.1 Equipment

More businesses had adequate equipment to store, process and cook food safely in 2007 (97%) compared to 2001 (90%) (Figure 121).

Businesses that were less likely to have adequate equipment for preparing food included:

➢ businesses in Western Australia (92%) (Figure 122); and

➢ businesses in which English was not the main language spoken (91%) compared to those for which English was the main language (97%).

Only a minority (3%) did not have adequate equipment for preparing food. This included inadequate bench space for food preparation, inadequate storage space in fridge and freezers (some businesses stored goods on the floor) and inadequate storage for dry goods.

Figure 121: Adequate equipment for food preparation

Q35 (2001): There is adequate equipment for preparing and processing food.
Q48 (2007): Is there adequate equipment for preparing food?
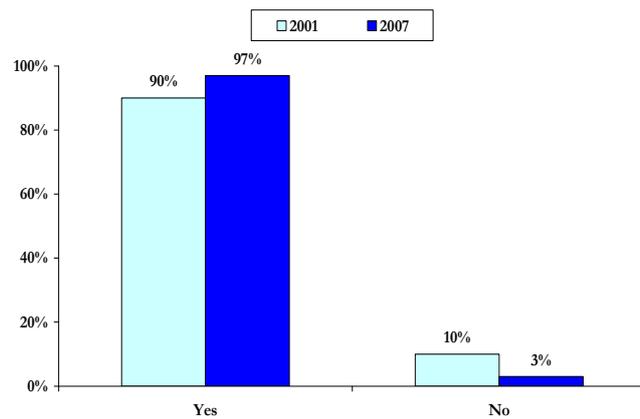
Base: All businesses (excluding no answer)
Yr 2001 = 448   Yr 2007 = 888 (Q48 - 86% of responses observed)

Figure 122: Adequate equipment for food preparation by location

Q48 (2007): Is there adequate equipment for preparing food?
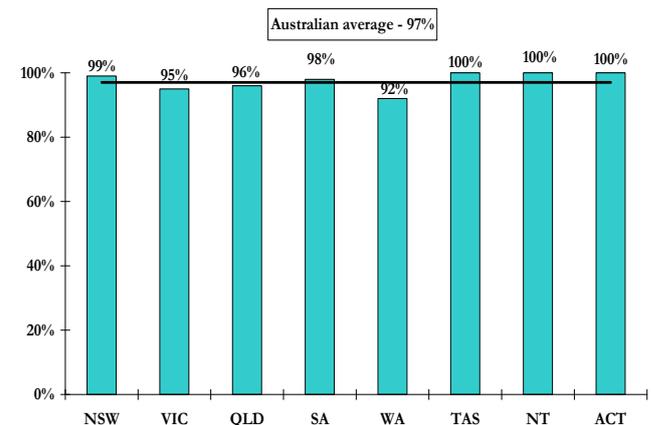
Base: All businesses (excluding no answer)
NSW = 196   VIC = 194   QLD = 176   SA = 116
WA = 120   TAS = 22*   NT = 31   ACT = 33
Note: * small base

7.5.2   General cleaning and maintenance

In 2001, one in ten (10%) businesses were not considered clean and well maintained. Similarly in 2007, one in ten (11%) businesses were not considered clean and just under one in ten (8%) were not considered well maintained (Figure 123). In combination:

> ➢ 86% of businesses were clean and well maintained;

> ➢ 5% of businesses were not clean and not well maintained;

> ➢ 3% of businesses were clean but not well maintained;

> ➢ 6% of businesses were not clean, but were well maintained; and

> ➢ businesses in which English was not the main language spoken were less likely to be considered clean (77%) and well maintained (84%) compared to those businesses for which English was the main language spoken (90% and 93% respectively).
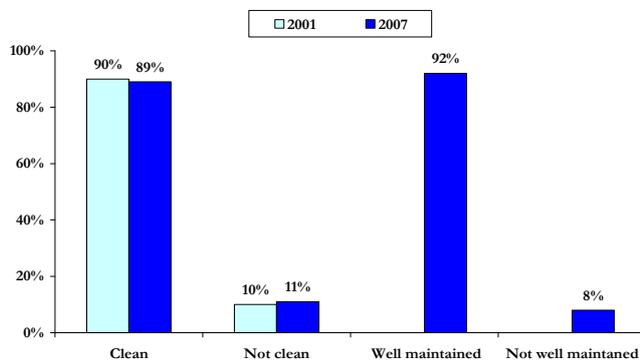
In 2007, the main problem areas for cleanliness were the preparation and cooking area (8% of all businesses) and the dry goods storage area (5%). The main areas not well maintained were the preparation and cooking area (5% of all businesses) and the dry goods storage area (3%) (Figure 124).

Figure 123:   Overall business is clean and well maintained

Q80 (2001):   The overall business premises and equipment are clean and well maintained?

Q93 (2007):   The overall business premises and equipment are clean

Q95 (2007):Are the overall business premises and equipment are well maintained?

Figure 124:   Cleanliness and maintenance problem areas

Q94 (2007):   Cleanliness problem areas
Q96 (2007):   Maintenance problem areas
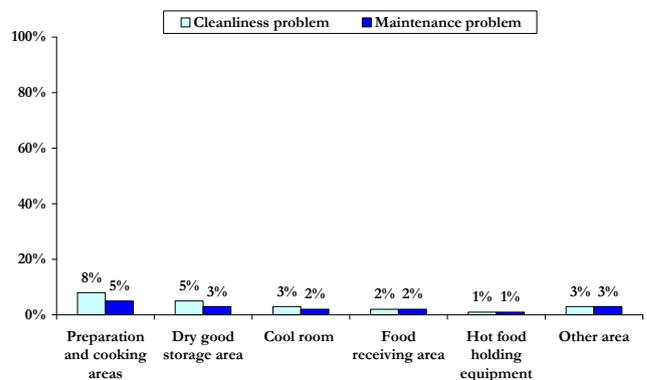

Base: All businesses (excluding no answer)
        Yr 2001 = 476   Yr 2007 = 912 (Q93 - 87% of responses observed)
                            Yr 2007 = 903 (Q95 - 86% of responses observed)

Base: All businesses (excluding no answer)
        Yr 2007 = 912 (Q94)   Yr 2007 = 903 (Q96)
Note: Multiple response possible

7.5.3   *Lighting and ventilation*

Few businesses were found to have inadequate lighting for the preparation and processing of food (4% in 2001 and 1% in 2007) (Figure 125).

Problems with ventilation in the food preparation and processing area were more common than inadequate lighting in both 2001 and 2007. However, there were fewer businesses with ventilation problems in 2007 (3%) compared to 2001 (7%) (Figure 126).

Figure 125: Adequate lighting for food preparation

Q78 (2001): Lighting is adequate for preparation and processing food.

Q91 (2007): Is lighting adequate for preparation and processing of food?

Figure 126: Adequate ventilation for food preparation

Q79 (2001): There is adequate ventilation when preparing and processing food.

Q92 (2007): Is there adequate ventilation when preparing and processing food?
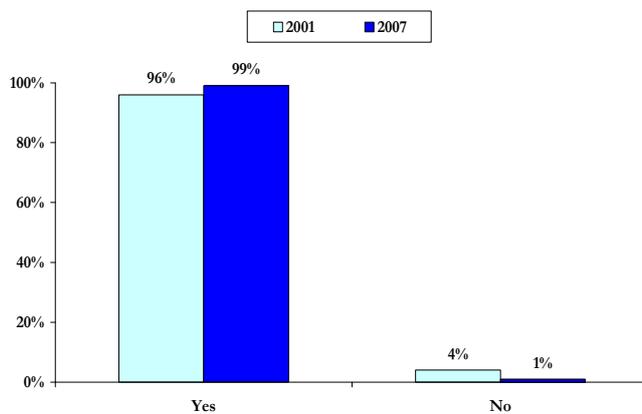
Base: All businesses (excluding no answer)
        Yr 2001 = 470   Yr 2007 = 912 (Q91 - 93% of responses observed)
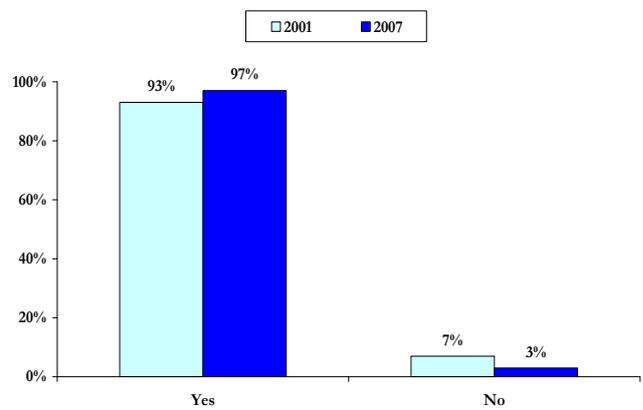
Base: All businesses (excluding no answer)
        Yr 2001 = 447   Yr 2007 = 908 (Q92 - 93% of responses observed)

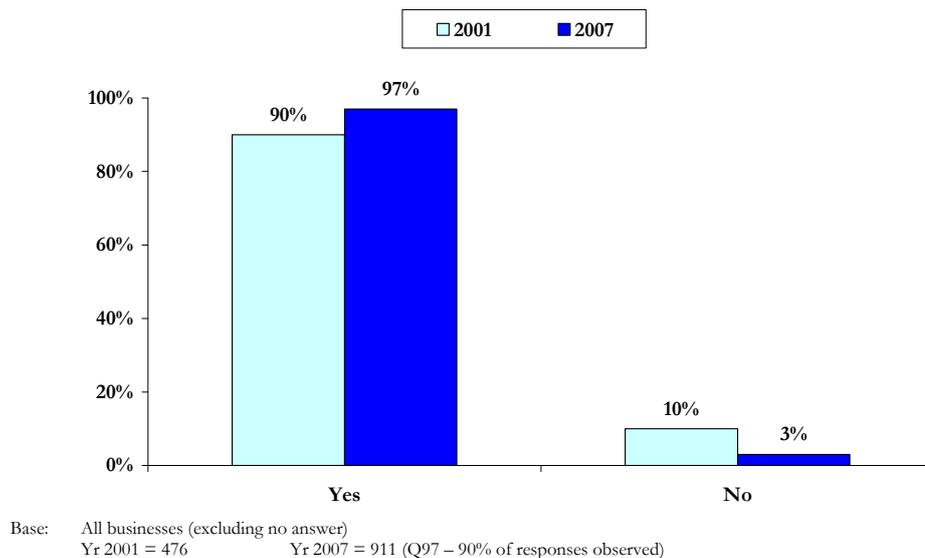### 7.5.4   *Pest control*

Fewer businesses had a problem with pests in 2007 compared to 2001 – in 2007, 3% of premises did not appear to be free from pests (10% in 2001) (Figure 127):

> ➤ by State however, one in ten (10%) businesses in the Northern Territory did not appear to be free from pests.

Figure 127: Premises free of pests

Q82 (2001): The premises is free of pests
Q97 (2007): The premises are free of pests

Base: All businesses (excluding no answer)
         Yr 2001 = 476   Yr 2007 = 911 (Q97 – 90% of responses observed)

More business contracted a pest control company or had a pest control program in 2007 (83%) compared to 2001 (76%). Although in 2007, almost one in five (17%) businesses did not have a program for managing pests (Figure 128).

Contracting a pest control company or having a pest control program was less often identified in:

> ➤ businesses in Victoria (70%) particularly compared to those in the Northern Territory (97%) and Queensland (91%). Two in three (65%) Tasmanian businesses contracted a pest control company although due to the low sample this was not significantly different to the national average;

> ➤ non-metropolitan (78%) compared to metropolitan businesses (86%);

> ➤ small (81%) compared to large businesses (91%); and

> ➤ businesses in which English was not the main language spoken (72%) compared to those for which English was the main language (84%).

Figure 128: Has pest control

Q83 (2001): The business contracts a pest control company or has a pest control program.

Q98 (2007): The business contracts a pest control company or has a pest control program

Figure 129: Has pest control by location

Q98 (2007): The business contracts a pest control company or has a pest control program
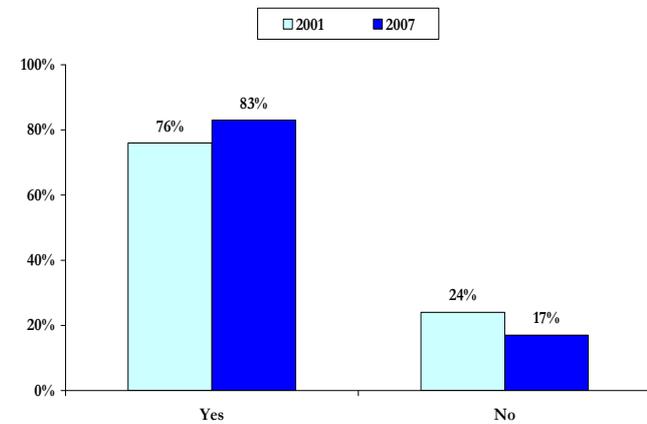
Base: All businesses (excluding no answer)
Yr 2001 = 468   Yr 2007 = 903 (Q98 - 18% of responses observed)
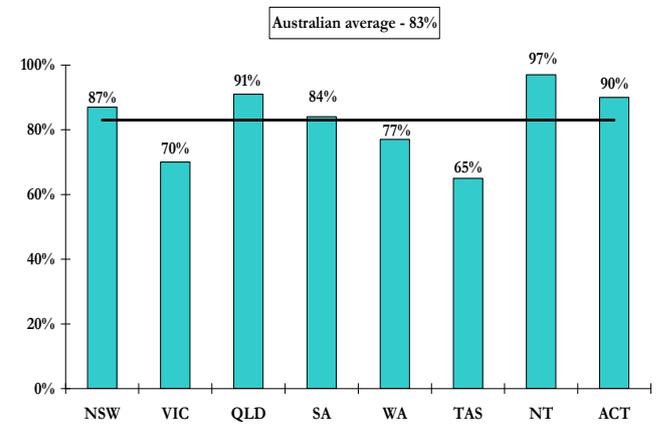
Base: All businesses (excluding no answer)
NSW = 203   VIC = 194   QLD = 179   SA = 115
WA = 119   TAS = 23*   NT = 31   ACT = 39
Note: * small base

7.5.5 Chemical storage

In businesses that stored chemicals, most stored them safely in 2007 (97%). This represents an increase compared to 2001 (94%) (Figure 130):

> ➢ safe storage of chemicals was particularly evident among businesses which had a food safety program (99%) compared to those that did not have a program (96%).

Figure 130: Chemicals are stored safely

Q84 (2001): Chemicals are stored safely
Q99 (2007): Chemicals are stored safely
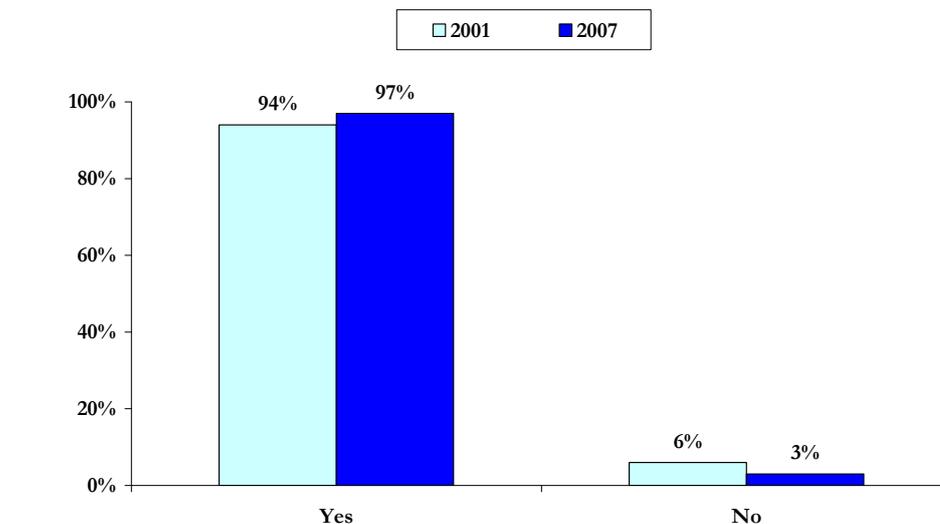
Base: All businesses (excluding no answer)
Yr 2001 = 462   Yr 2007 = 885 (Q99 – 86% of responses observed)

7.6　　Food recall plan and food safety programs

7.6.1　　*Food recall plans*

Businesses engaged in the wholesale supply, manufacturing or importation of food are required to have in place a system to ensure the recall of unsafe food. These types of businesses were asked if they had a written food recall plan. No assessment of the adequacy of the plan was made.

In 2007, 8% of businesses were engaged in the wholesale supply, manufacturing or importation of food. Among these businesses, half (50%) had a written food recall plan (Figure 131). This represents an increase from the one quarter (27%) of wholesalers, manufactures and importers that had a food recall plan in 2001.

Figure 131:　Wholesale/manufacturers/importers have food recall plan

Q86 (2001): If business is engaged in wholesale supply, manufacturing or importation of food, the business has a written food recall plan.

Q102 (2007): The business has a written food recall plan

Base:　　Wholesale, manufacturing or importing businesses (excluding no answer)
　　　　　Yr 2001 = 168　　　　　　　　Yr 2007 = 68 (Q102 - 10% of responses observed)
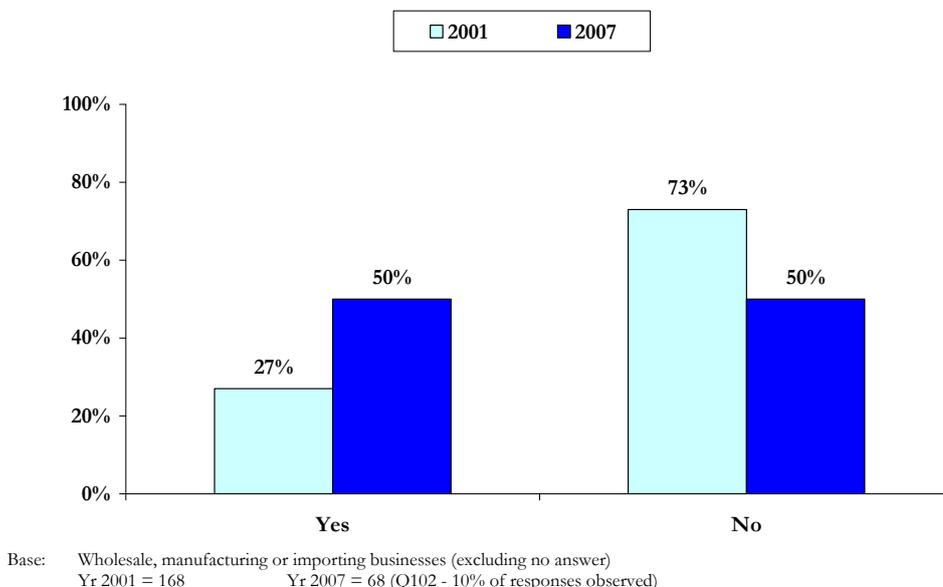
7.6.2   Food safety programs

Although Standard 3.2.1 *Food Safety Programs* is not a mandatory Standard (Victoria is the only State that requires all businesses, except low risk businesses, to have a documented food safety program) businesses were asked if they had a written food safety program. This program had to identify food safety hazards and ways to control and monitor these hazards. There had to be more than a set of work instructions available at the premises. The adequacy of the program was not assessed.

There has been an increase in the proportion of businesses with a written food safety program between 2001 (19%) and 2007 (39%). Food safety programs are mandatory in Victoria, therefore, the national average is inflated. In 2007, 24% of non-Victorian businesses had a food safety program (Figure 132) and 92% of Victorian businesses had a written food safety program (92%) (Figure 133).

Written food safety programs were more prevalent in:

➢ high risk (49%) compared to medium risk businesses (37%) – 49% of low risk businesses had a written food safety program;

➢ those supplying to high risk groups (65%) compared to those that did not supply to these groups (37%);

➢ large (65%) compared to small businesses (35%);

➢ caterers (45%) compared to non-caterers (38%); and

➢ businesses in which English was the main language spoken (41%) compared to those for which English was not the main language (28%).

Figure 132:   **Has written food safety program**

Q87 (2001): Business has a written food safety program
Q103 (2007): The business has a written food safety plan
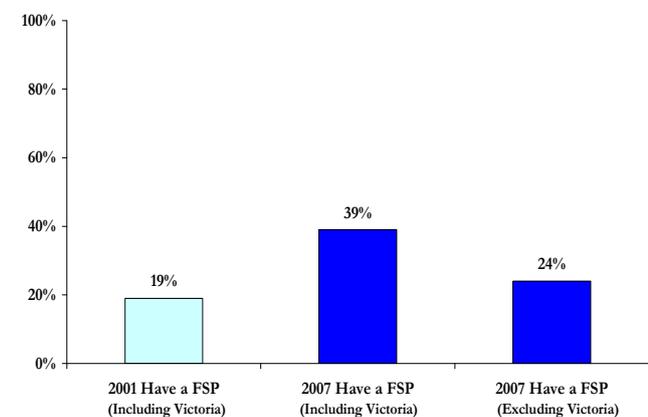
Base: All businesses (excluding no answer)
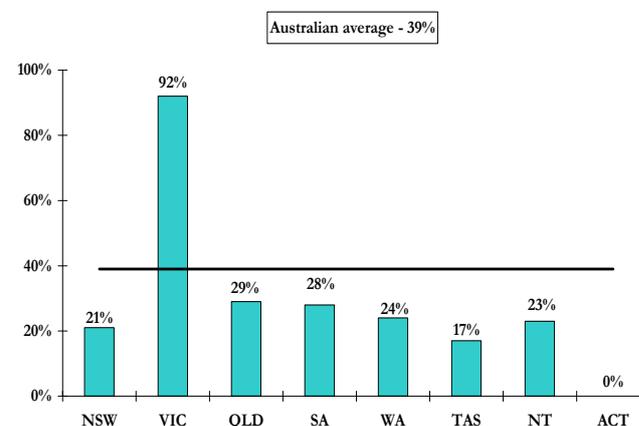   Yr 2001 = 452   Yr 2007 = 861 (Q103 - 30% of responses observed)

Figure 133:   **Has written food safety program by location**

Q103 (2007): The business has a written food safety plan

Base: All businesses (excluding no answer)
         NSW = 187   VIC = 194   QLD = 174   SA = 109
         WA = 116   TAS = 23*   NT = 30*   ACT = 28*
Note: * small base

7.7 Summary of similarities and differences between bakeries and other food businesses - Observational Survey

As a result of concerns in relation to bakery[14] and sushi businesses[15] (previously discussed in relation to the Telephone Survey – see Section 6.6 and 6.7), a particular focus of the Observational Survey was also on bakery and sushi businesses. This was addressed in two ways:

➢ all key questions were analysed for bakeries and sushi businesses with similarities and differences identified; and

➢ specific questions relevant to bakeries and makers of sushi were incorporated into the 2007 Observational Survey.

In-scope businesses were randomly sampled and a list provided to each participating council. The intention was to achieve a sample of 100 bakeries and 100 makers of sushi through the Observational Survey:

➢ It was expected that the random list for most councils would include a bakery. However, to ensure that the target 100 interviews with bakeries was achieved, EHOs were asked to randomly select a bakery if one was not included on their list. In total, 120 bakeries were included within the Observational Survey, with representation across all States and Territories;

➢ The random sampling process could not ensure the required sample of sushi makers (100). As a consequence, EHOs were asked to randomly select one maker of sushi within the council, that is, if one was not already included within the sample provided (and if there actually was a sushi maker in the council). In total, 72 makers of sushi were included within the Observational Survey.

7.7.1 Temperature control in bakeries

In regard to temperature control the key findings among bakeries were:

➢ three in four (77%) bakeries that received potentially hazardous food checked that it was received at a safe temperature (71%) or had an alternative system in place to ensure food safety (6%);

➢ over four in five (84%) bakeries handling potentially hazardous food had a probe thermometer;

➢ almost all (98%) bakeries that stored chilled food did so at 5ºC or below;

➢ almost all (99%) bakeries that held hot food did so at 60ºC or above (98%) or had an alternative system for ensuring that hot food was safely stored (1%); and

➢ over nine in ten (93%) bakeries that displayed potentially hazardous food held it at the correct temperature (92%) or had an alternative system to ensure that it was displayed safely (1%).

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[14] Bakeries were defined, for the purpose of the Observational Survey, as businesses that make pastries, pies, cakes and other bakery products on the premises, either for direct sale to the public, or for distribution to other businesses. It did not include businesses that manufacture bread only.

[15] Sushi makers were defined, for the purpose of the Observational Survey, as businesses that make sushi products on the premises, either for direct sale to the public or for distribution to other businesses. 'Sushi products' included:
  - 'Make' sushi – Nori seaweed and a layer of rice around a core of fillings
  - 'Nigiri' sushi – A slice of fish or other topping atop vinegared rice

7.7.2 Protecting food from contamination in bakeries

In regard to protecting food from contamination the key findings among bakeries were:

➢ almost all (99%) bakeries that handled raw and ready-to-eat food either used separate equipment for preparation (90%) or cleaned and sanitised equipment between uses (9%);

➢ 93% of bakeries had staff who used utensils or other barriers when handling ready-to-eat food; and

➢ 96% of bakeries whose staff wore gloves changed them when necessary.

There were a number of practices by bakeries which could potentially lead to food contamination compared to other businesses. Of those eligible to answer the question, a higher proportion of bakeries compared to all food businesses:

➢ did not protect all food from contamination in the cool room/refrigerator (19% of bakeries compared to 13% of all businesses);

➢ did not protect dry goods from contamination (8% and 4% respectively); and

➢ did not have displayed ready-to-eat food intended for self-service supervised by staff (63% and 41% respectively).

Use of piping bags in bakeries

Nine in ten (87%) bakeries used piping bags in the preparation of food (Figure 134):

➢ 48% of bakeries only used reusable piping bags;

➢ 15% only used disposable piping bags; and

➢ 23% used both types of piping bags.

Piping bags were generally not used for more than one product (92%), although under one in ten (8%) did use piping bags for more than one product (i.e. used for cream and then for meat products).

Figure 134: Use piping bags

Q118 (2007): *Use piping bags in the preparation of food*
Q119 (2007): *Disposable or reusable piping bags used*
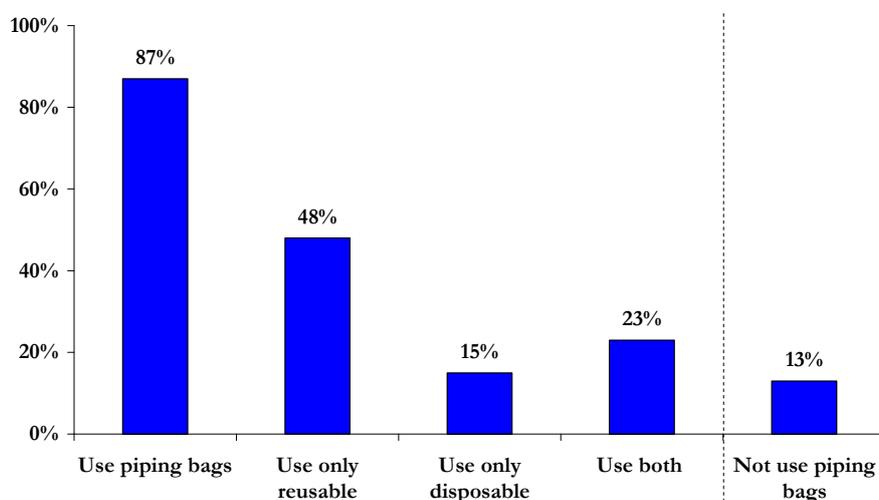
Base: Bakery business (excluding no answer)
Yr 2007 = 114 (Q118 – 29% of responses observed

Cross-contamination in bakeries

Almost one in five (17%) of the 71% of bakeries that used reusable piping bags did not adequately clean and sanitise the piping bag between uses (Figure 135).

There was evidence of cross contamination of foods occurring in 4% of all bakeries (Figure 136). This included handling money and ready-to-eat foods without changing gloves or washing hands, inadequate cleaning and sanitising of piping bags and nozzles stored in soiled containers.

Figure 135:	**Reusable piping bags adequately cleaned and sanitised between uses**	**Figure 136:**	**Evidence of cross-contamination of foods**

Q121 (2007): Reusable piping bags adequately cleaned and sanitised between uses   *Q122 (2007): Evidence of cross-contamination of foods*
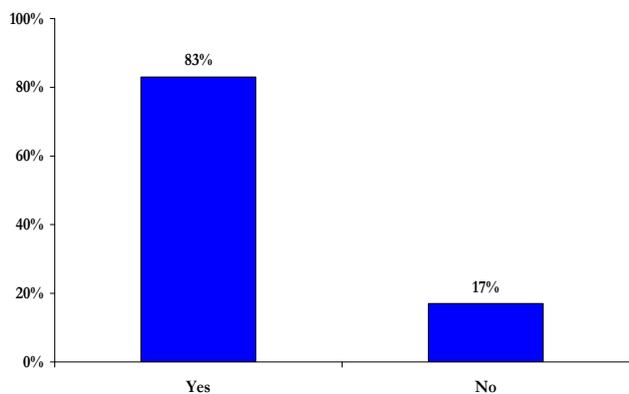
Base: Bakery business uses reusable piping bags (excluding no answer)
        Yr 2007 = 75 (Q121 – 17% of responses observed)
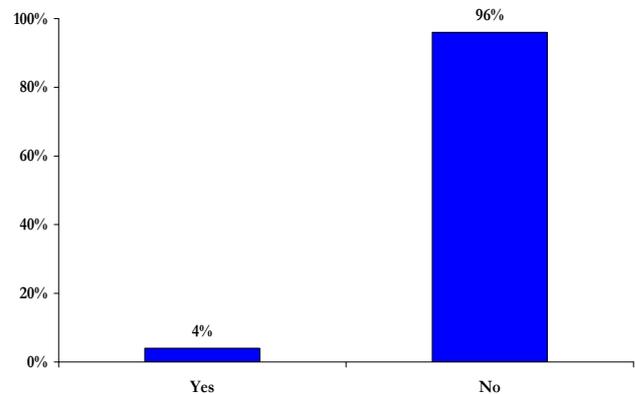
Base: Bakery business (excluding no answer)
        Yr 2007 = 113 (Q122 - 68% of responses observed)

Use of egg and egg products in bakeries

Overall, 84% of bakeries used either shell eggs, egg products or a combination of both in their food preparation (Figure 137):

> ➢ seven in ten (73%) bakeries used shell eggs as part of food preparation – over half (56%) only used shell eggs;

> ➢ three in ten (29%) used egg products as part of food preparation - 12% only used egg products; and

> ➢ under one in five (17%) bakeries used both shell eggs and egg products as part of their food preparation.

Figure 137: Use of eggs or egg products as part of food preparation

Q124 (2007):   *Business uses eggs or egg products as part of food preparation*
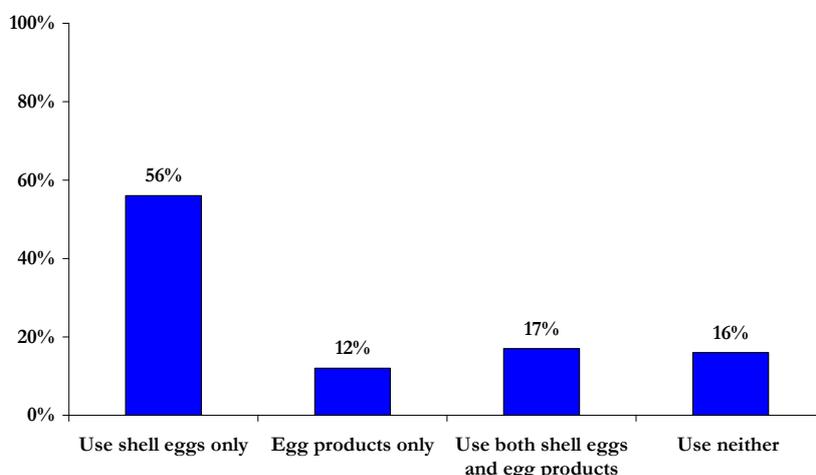
Base: Bakery business (excluding no answer)
Yr 2007 = 120

Egg and egg products were mainly sourced from a wholesaler or supplier (74%). Farms (17%), supermarkets (15%), local shops (7%) and other sources (5%) were less often utilised:

> ➢ bakeries that only used shell eggs mainly sourced from a wholesaler or supplier (71%), followed by supermarkets (18%), farms (16%) and local shops (8%); and

> ➢ bakeries that only used egg products mainly sourced from a wholesaler or supplier (79%), farm (14%) and local shops (7%) – none sourced from a supermarket.

Almost all (99%) shell eggs were visibly clean, although there were signs of stored shell eggs with visible cracks in one in five (19%) bakeries that used shell eggs (Figure 138 and Figure 139).

Figure 138:   Shell eggs visibly clean
Q126 (2007): Shell eggs visibly clean

Figure 139: Shell eggs have visible cracks
Q127 (2007):   Any shell eggs have visible cracks
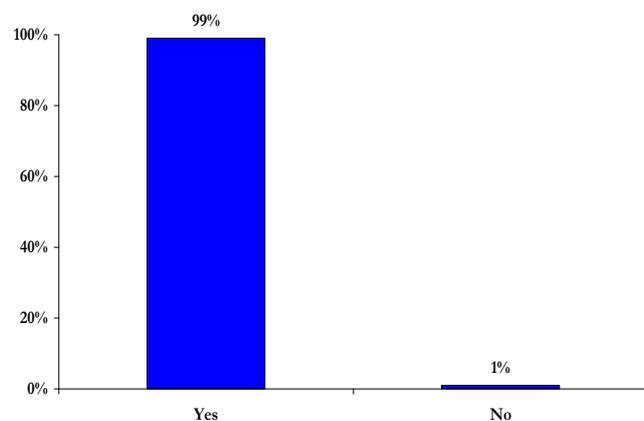
Base: Bakery business uses shell eggs
Yr 2007 = 80 (Q126 - 68% of responses observed)

Base: Bakery business uses shell eggs
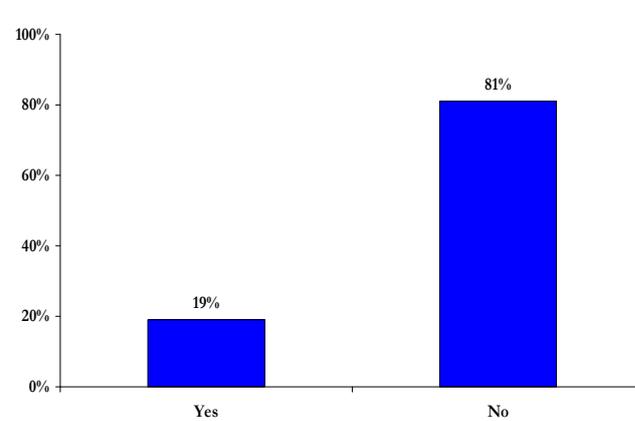Yr 2007 = 80 (Q127 - 78% of responses observed)

7.7.3   Personal hygiene of staff working in bakeries

Hand washing practices and ensuring that there are adequate facilities for hand washing are key components of personal hygiene. In general, hand washing facilities were less adequate in bakeries compared to all food businesses. A lower proportion of bakeries compared to all food businesses:

➢ provided sufficient hand washing facilities, that is, at least one hand washing facility within each food handling area (86% of bakeries compared to 93% of all businesses);

➢ provided hand washing facilities accessible to employees (85% and 94% respectively); and

➢ had staff that washed their hands in the designated hand washing facility (81% and 88% respectively).

Almost nine in ten (88%) bakeries had a policy relating to staff who were unwell.

7.7.4   Cleaning and sanitation in bakeries

Fewer bakeries used reusable eating and drinking utensils compared to all businesses nationally (37% and 56% respectively) and of these businesses, the use of commercial dishwashers was notably lower in bakeries compared to all businesses (45% and 64% respectively). One in ten (11%) bakeries with reusable utensils used a domestic dishwasher (13% nationally).

7.7.5   *Food safety programs in bakeries*

Overall, 26% of non-Victorian bakeries had a written food safety program and 93% of Victorian bakeries had a written food safety program. Nationally, 44% of bakeries had a written food safety program.

Figure 140: Food safety programs in bakeries

Q103 (2007):   Does the business have a written food safety program?
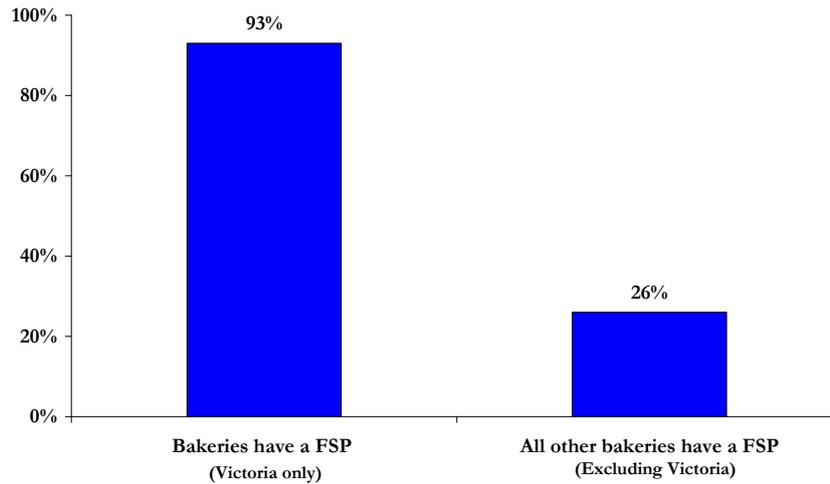
Base: Bakery business (120)
         Yr 2007, Victorian bakeries (29) – 59% of responses observed
         Yr 2007, Other bakeries (91) – 18% of responses observed

7.8   Summary of similarities and differences between sushi makers and other food businesses - Observational Survey

7.8.1   *Temperature control by sushi makers*

Summary of similarities and differences between sushi makers and other food business – temperature control

Displayed potentially hazardous food must be kept chilled (5ºC or below) or hot (60ºC or above) or at another temperature if it can be demonstrated that the time will not make the food unsafe. In regard to temperature control the key findings among sushi makers were:

➢ four in five (79%) sushi makers that received potentially hazardous food checked that it was received at a safe temperature (73%) or had an alternative system in place to ensure food safety (6%);

➢ four in five (79%) sushi makers handling potentially hazardous food had a probe thermometer;

➢ all (100%) sushi makers that stored chilled food did so at 5ºC or below (94%) or had an alternative system in place to ensure it was stored safely;

➢ nine in ten (92%) sushi makers that held hot food did so at 60ºC or above (87%) or had an alternative system for ensuring that hot food was safely stored (5%); and

➢ fewer makers of sushi that displayed potentially hazardous food did so within the temperature range in these guidelines ($\leq$5ºC) compared to the national average (75% and 89% respectively). However, it is possible to safely store sushi and sushi rice up to 15ºC if the pH of the rice is <4.8. Sushi makers were more likely to have an alternative system for ensuring potentially hazardous food was displayed safely compared to other food businesses (15% and 4% respectively).

Temperature and pH controlled storage of rice and sushi

Overall, 56% of sushi makers stored rice and sushi at 5ºC or less and 44% stored rice or sushi out of refrigerated conditions of 5ºC or less (Figure 141). Of all sushi makers:

  ➢ 44% added vinegar to the rice (or 100% of those who stored rice or sushi out of temperature control). Of this 44% who added vinegar, 75% correctly added at least 110mL of vinegar to every 1kg of cooked rice; and

  ➢ 6% measured the pH of the rice and the pH of the rice was ≤4.8 for all of these.

Figure 141:   Temperature control of stored or displayed rice/sushi

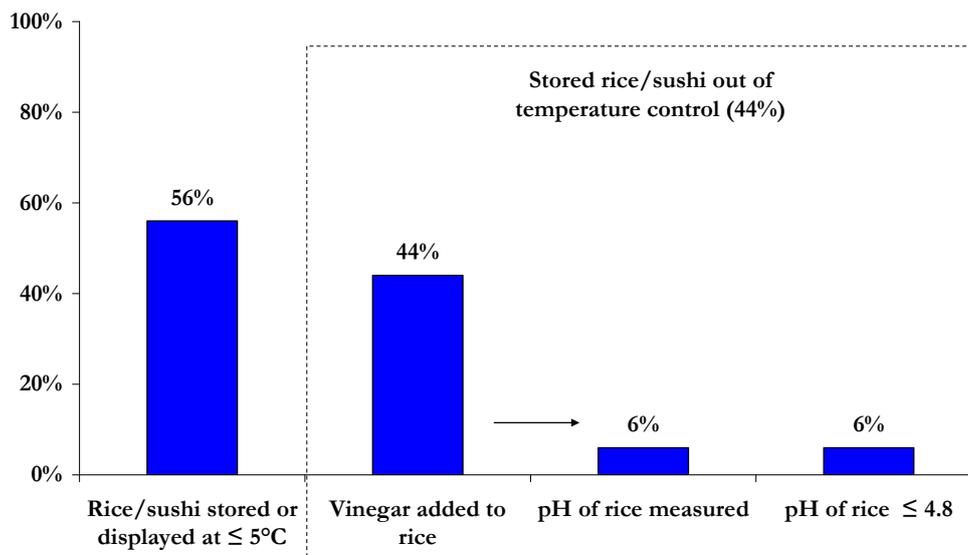*Q106 (2007): Rice refrigerated at 5ºC or less before use*

Q107 (2007): Sushi stored in refrigerated containers at 5ºC or less

Q108 (2007): Sushi displayed in refrigerated containers at 5ºC or less

Q109 (2007): Vinegar added to rice

Q112 (2007): pH of rice measured

Q113 (2007): pH of rice less than or equal to 4.8

Base: Business makes sushi
            Yr 2007 = 72

Temperature control of rice used in sushi

Of all sushi makers (Figure 142):

➢ 52% did not prepare the rice and store it for later use;

➢ 28% of sushi businesses prepared rice in advance and stored it for later use at 5ºC or less; and

➢ 20% of sushi businesses prepared rice in advance and *did not* store it at 5ºC or less. However, all of these businesses acidified the rice.

In terms of how long the rice is kept before using it, of all sushi makers (Figure 143):

➢ 52% did not prepare the rice and store it for later use;

➢ 11% kept the cooked rice for up to four hours before using it;

➢ 14% kept the rice for between 5 and 12 hours;

➢ 13% kept the rice for one or two days; and

➢ 10% did not know how long they kept the rice for before using it.

Figure 142:   Prepare and store rice in advance
Q105 (2007): Rice prepared in advance and stored before use
Q106 (2007): Rice refrigerated at 5ºC or less before use
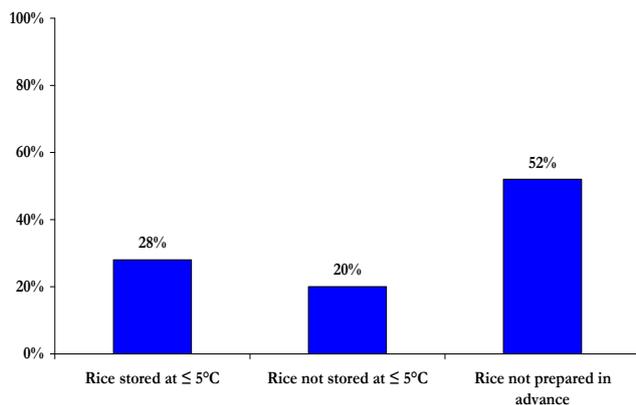
Base: Business makes sushi (excluding no answer)
Yr 2007 = 71 (Q105 - 20% of responses observed)

Figure 143:   Maximum time rice kept before using it
Q114 (2007): Maximum time cooked rice kept before using it
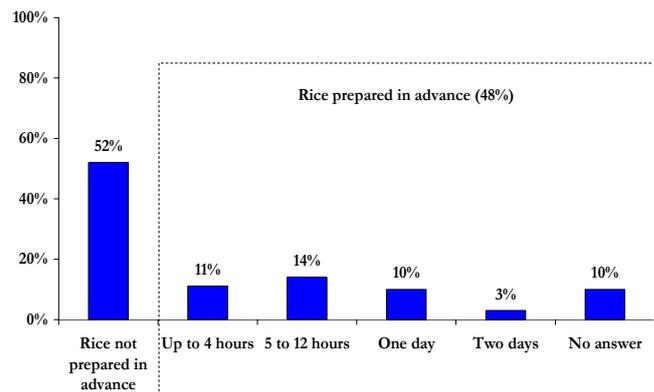
Base: Business makes sushi (excluding no answer)
Yr 2007 = 71

Temperature control for making and displaying sushi

Of all sushi makers (Figure 144):

> ➢ 22% did not prepare the sushi in advance;

> ➢ 78% prepared sushi in advance of serving or sale;

>> – 56% of sushi businesses prepared the sushi in advance and stored the sushi in refrigeration at 5ºC or less; and

>> – 22% of sushi businesses prepared the sushi in advance and *did not* store it at 5ºC or less. However, all of these businesses acidified the rice.

Of all sushi makers (Figure 145):

> ➢ 17% did not display the sushi;

> ➢ 83% presented the sushi for sale;

>> – 58% presented the sushi for sale in refrigerated conditions at 5ºC or less;

>> – 13% had a system to determine the amount of time the sushi had been on display at more than 5ºC; and

>> – 13% *did not* have a system to determine the amount of time the sushi had been on display at more than 5ºC.

Figure 144:   Sushi stored in refrigeration at 5ºC or less

Q107 (2007): Sushi stored in refrigeration at 5ºC or less

Figure 145:   Sushi displayed in refrigerated conditions at 5ºC or less

Q108 (2007): Sushi displayed in refrigerated conditions at 5ºC or less
Q115 (2007): Has a system to determine time the sushi has been on display
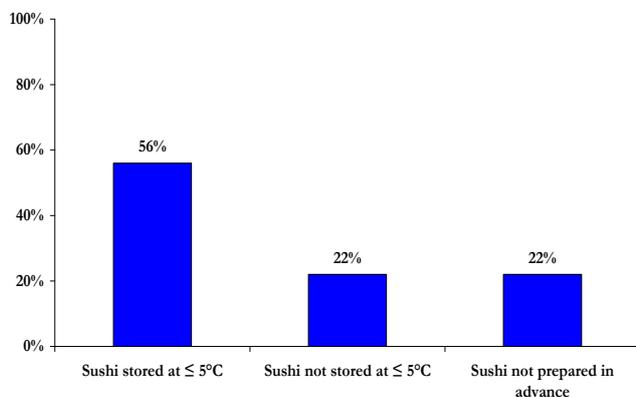
Base: Business makes sushi
         Yr 2007 = 72 (Q107 - 33% of responses observed)
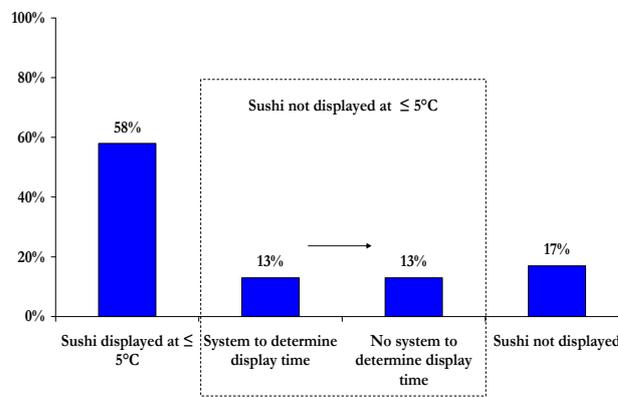
Base: Business makes sushi
         Yr 2007 = 72
         (Q108 – 58% of responses observed)
         (Q115 – 8% of responses observed)

7.8.2   *Protecting food from contamination and hygiene by sushi makers*

Summary of similarities and differences between sushi makers and other food business – protecting food from contamination

In regard to protecting food from contamination the key findings among sushi makers were:

 ➢ 96% of sushi makers that handled raw and ready-to-eat food either used separate equipment for preparation (89%) or cleaned and sanitised equipment between uses (7%);

 ➢ 93% of sushi makers had staff who used utensils or other barriers when handling ready-to-eat food;

 ➢ 94% of sushi makers who staff wore gloves changed them when necessary; and

 ➢ 85% of sushi makers had a policy related to staff who were unwell.

Disposal of sushi

Retail and hospitality businesses (94% of sushi makers) were asked what happened to unsold sushi at the end of the day. Eighty six percent said it was thrown away or discarded, although sometimes it was given away to staff and friends (55%). Few retail and hospitality businesses indicated that sushi was stored in the refrigerator for subsequent sale (5%) or used in the manufacture of other products (3%) (Figure 146).

Figure 146: Disposal of sushi

Q116 (2007): What happens to unsold sushi at the end of the day.
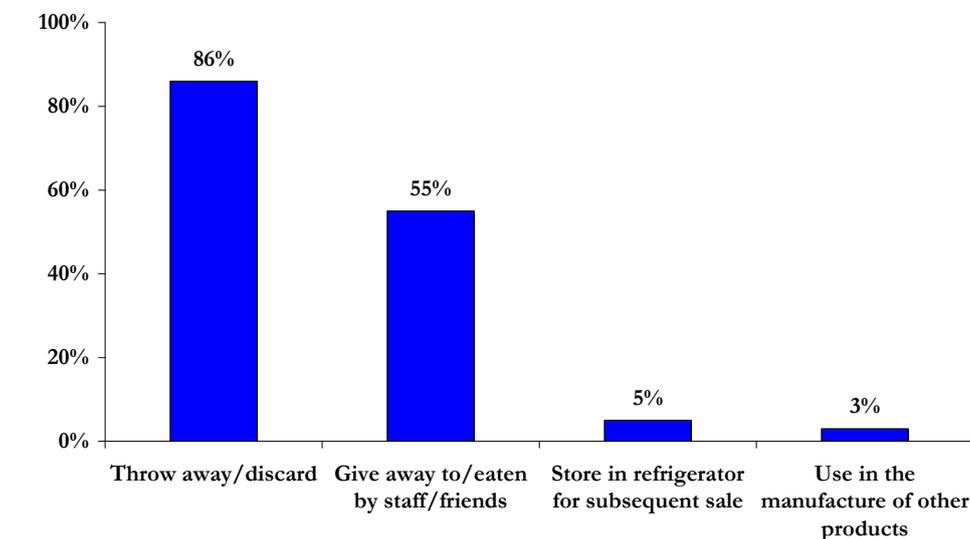
Base: Business makes sushi and is a retail or hospitality business
         Yr 2007 = 58
Note: Multiple response possible

7.8.3   Cleaning and sanitation by sushi makers

Fewer sushi makers used reusable eating and drinking utensils compared to all businesses nationally (40% and 56% respectively) and of these sushi makers 76% used a commercial dishwasher and none used a domestic dishwasher.

7.8.4   General assessment of the premises of sushi makers

The Observational Survey identified some general information about the premises of food businesses:

➢ most makers of sushi had adequate equipment for preparing food (96%) and similar to all food businesses (97%);

➢ fewer sushi businesses had adequate lighting compared to all food businesses (94% and 99% respectively) – 6% had inadequate lighting; and

➢ fewer sushi businesses contracted a pest control company or had a pest control program compared to all food businesses (71% and 83% respectively) – 29% did not contract a pest control company.

7.8.5   Food safety programs among sushi makers

Overall, 17% of non-Victorian sushi makers had a written food safety program and 100% of Victorian sushi makers had a written food safety program. Nationally, 42% of sushi makers had a written food safety program.

Figure 147: Food safety programs among sushi makers

Q103 (2007):   Does the business have a written food safety program?
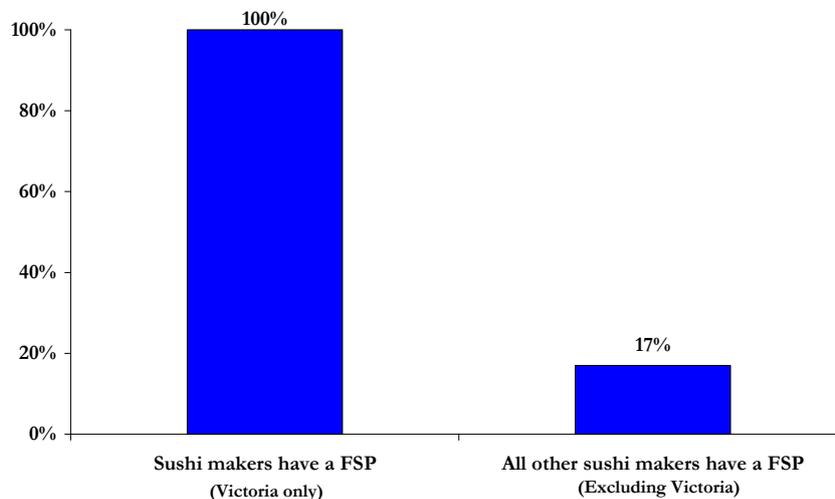
Base: Business makes sushi (72)
          Yr 2007, Victorian sushi makers (18) – 67% of responses observed
          Yr 2007, Other sushi makers (54) – 19% of responses observed

7.9 Summary of State/Territory differences (Observational Survey)

The following table shows the 2007 national results for questions that had a robust sample base and indicates the State/Territories whose result was significantly above or below the national average for the Observational Survey. The table also compares the results from 2001 (where applicable). The base for each question is those businesses that were eligible to answer the question.

When viewing this summary the reader should be aware that the survey does not take into account jurisdictional requirements that may be in place, for example, the requirement for all Victorian business, except low risk businesses, to have a food safety program, or differing jurisdictional enforcement strategies and priorities.

Table 16: Summary of State/Territory differences				
	2007 National Results	**Above National Rate**	**Below National Rate**	**2001 National Results**
Receiving food				
Q10. Food delivered out of businesses' hours	25%	SA (36%)	ACT (5%)	24%
Q11. Check that PHF received at safe temperature	71%↑	VIC (85%)	WA (61%)	35%
Q12. Alternative system for PHF safety	9% ↓	-	-	21%
Q14. Check frozen food when received	96%↑	-	-	91%
Q15. Food protected from contamination	98%	-	-	97%
Thermometers				
Q16. Have probe thermometer	81%↑	VIC (91%)	ACT (66%)	41%
Q17. Probe thermometer accessible to staff	93%	-	-	na
Q18. Staff know how to use probe thermometer	93%	SA (98%)	QLD (85%)	91%
Q19. How check delivered chilled food				
Touch	75%↑	NSW (83%) ACT (91%)	VIC (62%)	46%
Appearance	75%↑	-	VIC (66%)	61%
Thermometer (in or between food)	53%↑	VIC (77%)	NSW (43%) QLD (44%) WA (42%)	39%
Temperature gauge in vehicle	29%↓	VIC (38%)	WA (16%)	57%
Laser/ray gun	15%↑	VIC (24%)	NSW (7%)	0%
Food storage				
Q20. Chilled food stored at or below 5°C	97%↑	-	QLD (93%)	91%
Q21. Alternative system for chilled food safety	0% ↓	SA (2%)	-	2%

Table 16:   Summary of State/Territory differences

	2007 National Results	Above National Rate	Below National Rate	2001 National Results
Q23. Raw and ready-to-eat food separated in cool room	95%↑	-	-	91%
Q24. Adequate storage in cool room	94%	-	QLD (90%)	94%
Q25. Food protected from contamination in cool room	87%	NSW (93%)	-	86%
Q26. Hot food held at or above 60°C	93%	-	-	92%
Q27. Alternative system for hot food safety	1%	-	-	1%
Q29. Appropriate equipment for hot food	94%	-	-	97%
Q30. Adequate equipment for hot food	94%	SA (100%)	NSW (88%)	na
Q31. Dry goods protected from contamination	96%	-	-	94%
Q32. Dry good free from pests	99%	-	-	96%
Cooking, cooling, reheating and displaying				
Q33. Food cooked to the correct temperature	87%↑	-	WA (80%)	54%
Q34. Alternative method to check cooked food	10%↓	WA (16%)	-	34%
Q36. Cooked food cooled within correct time	87%	-	NSW (78%)	85%
Q37. Alternative system for cooling safely	3%	-	-	4%
Q39. Cooled cooked food reheated within correct time	93%	-	-	90%
Q40. Alternative system for reheating safely	1%	-	-	1%
Q42. Displayed food protected from contamination	96%↑	-	-	91%
Q43. Displayed ready-to-eat food supervised by staff	59%↓	SA (82%) WA (78%)	NSW (40%)	85%
Q44. PHF on display held at correct temperature	89%	-	-	85%
Q45. Alternative system for PHF displayed safely	4%	-	-	3%
Q47. Food removed from display added to new batch on next day	21%	-	WA (11%)	16%
Q48. Adequate equipment	97%↑	NSW (99%)	WA (92%)	90%
Transporting food				
Q50. Transports food	22%	-	-	20%
Q51. Transported food protected from contamination	98%	-	-	99%
Q52. Transport chilled food	65%↓	-	-	81%

Table 16: Summary of State/Territory differences				
	2007 National Results	**Above National Rate**	**Below National Rate**	**2001 National Results**
Q55. Transported chilled at correct temperature	70%	-	-	77%
Q56. Alternative system for chilled food transport	9%	-	-	12%
Q58. Transport hot food	46%	-	-	51%
Q61. Transported hot at correct temperature	76%	-	-	77%
Q62. Alternative system for hot food transport	7%	-	-	12%
Cleaning and sanitising				
Q65. Use commercial dishwasher	65%↑	-	-	30%
Q67. Use domestic dishwasher	7% ↓	-	-	13%
Q69. Use hot glass washers	24%↑	-	-	16%
Q71. Use chemical sanitisers	82%↑	-	NSW (75%) ACT (67%)	76%
Q72. Chemical sanitisers used appropriately	93%	-	-	91%
Q73. Use hot water to sanitise	31%↓	NSW (40%) ACT (48%)	VIC (21%) SA (18%)	58%
Protecting food from contamination				
Q75. Separate equipment for raw and ready-to-eat food	92%	-	-	91%
Q76. Clean and sanitise between uses	6%	-	-	na
Q77. 'Clean' clothing of staff	97%	-	-	96%
Q78. Barrier used for ready-to-eat food	94%	-	-	94%
Q79. Staff change gloves when necessary	93%	-	-	91%
Hand washing				
Q80. Wash hands when necessary	na	-	-	9%
Q81. Wash in designated area	88%↑	-	-	80%
Q82. Staff wash and dry hands correctly	87%	SA (94%)	-	84%
Q83. Sufficient hand washing facilities provided	93%↑	-	-	83%
Q84. Facilities accessible to employees	94%↑	-	ACT (85%)	89%
Q85. Facilities supplied with soap	93%	-	QLD (89%)	93%
Q86. Facilities show evidence of recent use	84%	NSW (90%) WA (92%)	QLD (74%)	85%
Q87. Warm running water	90%↑	NSW (96%)	VIC (82%)	85%

Table 16: Summary of State/Territory differences	2007 National Results	Above National Rate	Below National Rate	2001 National Results
Q88. Single use towels	85%↑	WA (92%)	-	79%
Staff sickness				
Q89. Policy for unwell staff	89%↑	-	-	79%
Q90. Cover wounds with waterproof dressing	97%↑	-	-	94%
General assessment of premises				
Q91. Adequate lighting	99%↑	-	-	96%
Q92. Adequate ventilation	97%↑	SA (100%)	WA (94%)	90%
Q93. Premises and equipment clean	89%	NSW (95%)	-	90%
Q95. Premises and equipment well maintained	92%	-	-	na
Q97. Premises free from pests	97%↑	-	NT (90%)	90%
Q98. Contract pest control company	83%↑	QLD (91%) NT (97%)	VIC (70%)	76%
Q99. Chemicals stored safely	97%↑	-	-	94%
Q100. Personal clothes stored appropriately	92%	-	WA (85%)	93%
Food recall and safety plan				
Q102. Written food recall plan (manufacturers)	50%↑	-	-	27%
Q103. Written food safety program[16]	39%↑	VIC (92%)	NSW (21%) QLD (29%) SA (28%) WA (24%) ACT (0%)	19%

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[16] Victoria has additional requirements for all food businesses (except low risk businesses) to have a documented food safety program.