

**SAFE FOOD HANDLING IN AUSTRALIAN FOOD BUSINESSES –  
KNOWLEDGE AND PRACTICES**

**An Interpretive Summary of the 2007 and 2001 National Food Handling Surveys**

**Food Standards Australia New Zealand**

**July 2009**

FSANZ would like to sincerely thank the Environmental Health Officers, Local Government Councils and State and Territory food regulatory authorities who volunteered their assistance in conducting the on-site Observational Survey component of this study.

FSANZ would also like to thank the 2007 National Food Handling Survey External Project Team for their ongoing expertise and advice at all stages of the project.

# SAFE FOOD HANDLING IN AUSTRALIAN FOOD BUSINESSES – KNOWLEDGE AND PRACTICES

## An Interpretive Summary of the 2007 and 2001 National Food Handling Surveys

Food Standards Australia New Zealand  
September 2008

INTRODUCTION .....	1
1. BACKGROUND .....	2
1.1 <i>The National Food Safety Standards</i> .....	2
1.2 <i>The FSANZ Evaluation Strategy</i> .....	2
1.3 <i>Evaluation of the Food Safety Standards</i> .....	3
2. DISCUSSION OF RESULTS FOR EACH OF THE KEY FOOD SAFETY AREAS .....	6
2.1 <i>Temperature control</i> .....	6
Thermometers .....	6
Receipt of potentially hazardous food .....	7
Storing and displaying potentially hazardous food .....	7
Cooking, cooling and reheating cooked food .....	8
Transport of potentially hazardous food .....	9
2.2 <i>Protecting food from contamination</i> .....	11
2.3 <i>Cleaning and sanitising</i> .....	13
2.4 <i>Personal hygiene and staff illness</i> .....	15
2.5 <i>General assessment of premises</i> .....	17
2.6 <i>Staff food safety training</i> .....	18
2.7 <i>Food recall plans</i> .....	19
2.8 <i>Food Safety Programs</i> .....	20
2.9 <i>Sources of food safety information</i> .....	21
2.10 <i>Awareness of and changes in practices as a results of the introduction of the Food Safety Standards</i> .....	21
3. BAKERIES AND SUSHI MANUFACTURERS .....	23
3.1 <i>Bakeries</i> .....	23
3.2 <i>Sushi makers</i> .....	25
4. LIMITATIONS AND LESSONS LEARNT FOR FUTURE SURVEYS .....	29
5. CONCLUSION .....	31
REFERENCES .....	33
APPENDIX 1: RESULTS FROM THE 2007 NATIONAL FOOD HANDLING SURVEY FOR EACH OF THE KEY FOOD SAFETY AREAS .....	34
<i>Temperature control</i> .....	34
<i>Protecting food from contamination</i> .....	37
<i>Cleaning and sanitising</i> .....	38
<i>Personal hygiene and staff illness</i> .....	40
<i>General assessment of premises</i> .....	41
<i>Staff food safety training</i> .....	42
<i>Food recall plans</i> .....	42
<i>Food Safety Programs</i> .....	43
<i>Sources of food safety information</i> .....	43
<i>Awareness of and changes in practices as a result of the introduction of the Food Safety Standards</i> .....	43
<i>Bakeries</i> .....	45
<i>Sushi makers</i> .....	48
APPENDIX 2: BUSINESS DEMOGRAPHICS .....	52

## ***Introduction***

This Interpretive Summary, prepared by Food Standards Australia New Zealand (FSANZ), assesses the differences in the safe food handling knowledge and practices of food businesses before and after the introduction into Australia of the National Food Safety Standards between 2001 and 2003. We discuss areas where action could be undertaken by FSANZ and other parties, such as State and Territory Health Departments and local councils, industry and consumer groups in order to improve safe food handling knowledge and practices among food businesses in Australia. Our analysis of the results is intended to be useful to food regulatory authorities, industry associations and information services such as the Food Safety Information Council to inform compliance activities and education initiatives.

The Interpretive Summary is based on our analysis of the results presented in the Final Report of the 2007 National Food Handling Survey (the 2007 Survey) that was conducted by Campbell Research & Consulting (CR&C) on behalf of FSANZ. The 2007 Survey was a follow-up to the 2001 National Food Handling Benchmark Survey (the Benchmark Survey) and was conducted to evaluate the impact of the introduction of the National Food Safety Standards, in Australia only, on the awareness, knowledge and practices of safe food handling by staff (food handlers and supervisors) within food businesses in Australia. The 2007 Survey included a targeted evaluation of bakeries and sushi makers to obtain 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.

CR&C have provided a detailed account of the results of the project, including the methodologies and a comparison between the 2001 Benchmark Survey and the 2007 Survey, which can be found in the *2007 National Food Handling Survey Final Report* (the Final Report)<sup>1</sup>.

This Interpretive Summary provides extra information on comparisons between the level of safe food handling knowledge and actual practices and comparisons between key demographics such as business size, business priority classification<sup>2</sup>, the main language spoken at the business and whether the business has a food safety program. A summary of survey results for each of the key food safety areas is also included at Appendix 1. This Interpretive Summary also includes a discussion on the limitations of the Surveys and lessons learnt for future surveys.

---

<sup>1</sup> Full reports for each of the 2001 and 2007 Surveys, including the methodology, details of the types of business involved in the surveys and the survey results are available on the FSANZ website. The 2007 survey is available at <http://www.foodstandards.gov.au/monitoringandsurveillance/monitoringandevaluat1584.cfm>

The 2001 Report is available at

<http://www.foodstandards.gov.au/newsroom/publications/nationalfoodhandling1315.cfm>

<sup>2</sup> 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.

## **1. Background**

### **1.1 The National Food Safety Standards**

Foodborne illness constitutes a potential threat to public health and therefore minimising the risk of foodborne 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 providing safe food controls for the purposes of protecting public health and safety. 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 allow consistent food safety regulations to be implemented across all States and Territories and 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*<sup>3</sup>.

Between 2001 and 2003, Australian, State and Territory Governments amended their legislation to give legal effect to the new Food Safety Standards. 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, Standard 3.2.1 *Food Safety Programs*, was included in the Code in December 2000. However, the Australia and New Zealand Food Regulation Ministerial Council<sup>4</sup> deferred the application of Standard 3.2.1 to food businesses until sound data on foodborne 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 via their legislation, ahead of a national requirement.

### **1.2 The FSANZ Evaluation Strategy**

FSANZ is committed to undertaking scientific and technical evaluation of the impact of implementing key new food regulatory measures. The FSANZ Evaluation Strategy 2004-2008 outlines the program of evaluation activities for this time period that aim to assess

---

<sup>3</sup> The Food Safety Standards can be found at [www.foodstandards.gov.au/thecode/foodsafetystandardsaustraliaonly/index.cfm](http://www.foodstandards.gov.au/thecode/foodsafetystandardsaustraliaonly/index.cfm)

<sup>4</sup> ANZFRMC is primarily responsible for the development of domestic food regulatory policy and the development of policy guidelines for setting domestic food standards. See [www.health.gov.au/internet/main/publishing.nsf/Content/foodsecretariat-anz.htm](http://www.health.gov.au/internet/main/publishing.nsf/Content/foodsecretariat-anz.htm)

whether the intended outcomes of implementing new regulatory measures have been achieved<sup>5</sup>. Evaluations provide evidence to inform future decisions on food regulation including assessment of food standards and supporting material such as interpretive user guides and fact sheets, if available. The results of the evaluation of standards may also guide and support compliance activities such as undertaking enforcement and education initiatives or the development of support materials for food businesses.

### 1.3 Evaluation of the Food Safety Standards

At the time of introduction of the Food Safety Standards in 2001, FSANZ initiated a project to evaluate their impact, and the ensuing Benchmark National Food Handling Survey was commissioned that year. The FSANZ Evaluation Strategy 2004 – 2008 built on the earlier evaluation activities and included the subsequent evaluation of the introduction of the Food Safety Standards. The 2007 Survey was designed to assess the impact of the Food Safety Standards on food handling knowledge and practices in food businesses before and after their implementation.

#### *Objectives of the Food Safety Standards*

The overall objective of the Food Safety Standards is the protection of public health and safety by decreasing the risk of raw, manufactured, processed or prepared foods carrying microorganisms, foreign material or other contamination likely to cause foodborne illness or otherwise make the food unsafe or unsuitable. However, in addition to food safety regulation, many other factors impinge on the safety of the food consumed. Therefore a change to the level of public 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 a food regulatory measure. Factors that can influence food safety and public health include:

- food handlers' and supervisors' level of safe food handling knowledge and practices of food businesses
- the willingness of businesses to comply with food safety regulations;
- the level of enforcement of the standards;
- consumers' level of safe food handling knowledge and practices relating to storage and preparation of food; and
- consumers' susceptibility to illness from microbiological, physical and chemical hazards.

Additionally, data on the incidence of foodborne illness is not straightforward to interpret (Hall et al, 2005; Mead et al, 1999). It is generally an estimate which is influenced by factors such as:

- differences in surveillance systems;
- the quality of outbreak data available to estimate the proportion of cases that are foodborne;
- investigation study design and the definition of terms such as gastroenteritis;

---

<sup>5</sup> Details of the monitoring and evaluation activities of FSANZ, including the FSANZ Evaluation Strategy 2004 – 2008, can be found at [www.foodstandards.gov.au/monitoringandsurveillance/monitoringandevaluation1584.cfm](http://www.foodstandards.gov.au/monitoringandsurveillance/monitoringandevaluation1584.cfm)

- improvements in the knowledge and ability to diagnostically identify certain pathogens – some foodborne illnesses are caused by pathogens that are not always identifiable or have only been recognised as causes of foodborne illness in recent years; and
- the level of underreporting because the ill person does not seek medical care, the medical provider does not obtain a specimen for diagnosis, the laboratory does not perform the necessary diagnostic test, or the illness is not reported to public health officials.

### *Objectives of the evaluation of the Food Safety Standards*

In determining how to measure the impact of the introduction of the Standards the assumption was made that if results from the assessment of business' knowledge and practices relating to the key requirements of the Standards had a positive outcome, then it could be assumed that this in turn would have an impact on improvements in overall food safety and public health.

**In order to assess the impact of the introduction of the National Food Safety Standards on the protection of public health and safety FSANZ has evaluated the interim objectives of achieving positive changes in safe food handling awareness, knowledge and behaviour of food businesses.**

### *Survey design*

Both the 2001 Benchmark Survey and the 2007 Survey featured two core components:

- a telephone survey of persons responsible for food handling in food businesses to ascertain knowledge and attitudes in relation to safe food handling; and
- an observational survey of food businesses practices by Environmental Health Officers (EHOs).

FSANZ commissioned Campbell Research and Consulting (CR&C) to independently conduct each survey and analyse the results. Details of the methodology, types of businesses and results are given in the final reports on the FSANZ website<sup>1</sup>.

In the 2007 Survey there was an extra component that specifically focused on the food safety knowledge and practices of bakeries<sup>6</sup> and sushi makers<sup>7</sup>. This was in response to concerns that:

- there had been a number of food poisoning incidents associated with poor food handling practices in bakeries possibly due to reusing piping bags or other poor handling practices and the use of cracked and dirty eggs.

<sup>6</sup> 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. In the Observational Survey, bakeries were defined as businesses that make pastries, pies, cakes and other bakery products on the premises, for sale or distribution. It did not include businesses that manufacture bread only.

<sup>7</sup> For the purpose of the Telephone and Observational Survey, sushi manufacturers 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) and 'Nigiri' sushi (a slice of fish or other topping atop vinegared rice).

- sushi makers that prepare large quantities of rice and final sushi product in advance may not be applying appropriate food safety controls to prevent pathogen growth.

Responses to the Telephone Survey were analysed separately for these businesses. The Observational Survey included additional sets of questions, specifically relating to sushi and bakery businesses.

The questionnaires for the 2007 project were based on that used for the 2001 Benchmark Survey to enable comparison between the two. CR&C worked closely with FSANZ to refine the Survey to reflect changes in the food industry between 2001 and 2007 and feedback on the 2001 survey, to incorporate extra questions relating to bakeries and sushi makers, and to improve content and wording.

## **2. Discussion of results for each of the key food safety areas**

This Report discusses statistically significant results of the 2007 National Food Handling Survey. This includes identifying where food safety knowledge and practices have improved, declined or been maintained since the 2001 Benchmark Survey, and any differences between knowledge and actual practices. We have also identified where knowledge and practices are at a high level or where results indicate that action could be undertaken in order to improve safe food handling knowledge and practices among food businesses in Australia. In many instances discussion and conclusions have been drawn from a range of questions and actual results for individual questions have not been cited. The full results supporting the interpretation provided in this document are given in the 2001 and 2007 Survey reports. However, a summary of the main outcomes under each key food safety area is given in Appendix 1 for quick reference. This Interpretive Summary also gives further insights into the results from the 2001 and 2007 Surveys that are not included in the published reports of these surveys.

Survey results for different business demographics were reported only where there was a statistically significant difference observed. Data on business demographics can be found in Appendix E to the Final 2007 Report. Background information on the parameters used for data analysis including business location, size of business, type of business, main language spoken and some behaviours such as having a food safety program or not, is given in Appendix 2 to this report for convenience.

### **2.1 Temperature control**

Controlling the temperature of potentially hazardous food<sup>8</sup> is a critical element in maintaining the microbiological safety of food. The Food Safety Standards require that potentially hazardous food must be transported, received, stored and displayed under temperature control. That is, chilled potentially hazardous food must be kept at 5°C or below and hot potentially hazardous food at 60°C or above, or at another temperature if it can be demonstrated that the time the food is at another temperature does not adversely affect its microbiological safety. Additionally, 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 accurately check the temperature of potentially hazardous foods.

The surveys sought information on the knowledge of and practices used by businesses to safely cook, cool and reheat potentially hazardous food and to ensure that their potentially hazardous food is kept under temperature control during receipt, storage, display and transport.

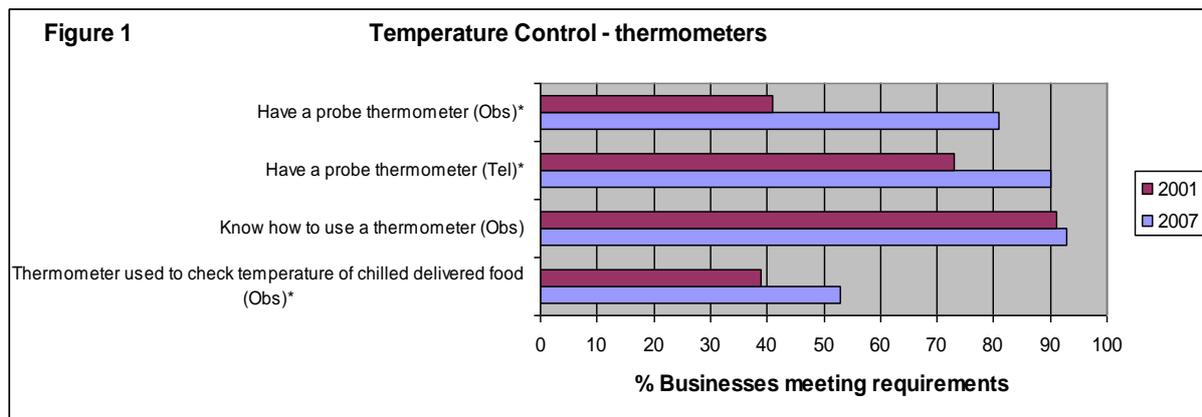
#### ***Thermometers***

There has been a significant increase between 2001 (41%) and 2007 (81%) in the proportion of businesses that handle potentially hazardous food observed to have a probe thermometer. However, this means there is still a proportion (19%) of businesses that do not have a probe thermometer. Additionally, survey results indicate that the frequency and use of a

---

<sup>8</sup> Potentially hazardous food means food that has to be kept at certain temperatures to minimize the growth of any pathogenic micro-organism that may be present in the food or to prevent the formation of toxins in the food.

thermometer to check the temperature of delivered potentially hazardous foods could be further improved.



\* indicates a significant difference between 2001 and 2007 survey results

Obs = Observational Survey

Tel = Telephone Survey

Note – number of businesses responding for each question varies

### ***Receipt of potentially hazardous food***

There has been a significant improvement from 2001 to 2007 in the proportion of businesses that have potentially hazardous food delivered having a system to ensure the safety of the food they received.

Even so, there are still areas of food handling for receipt of potentially hazardous foods that require further improvement in knowledge and practices. Results of note are:

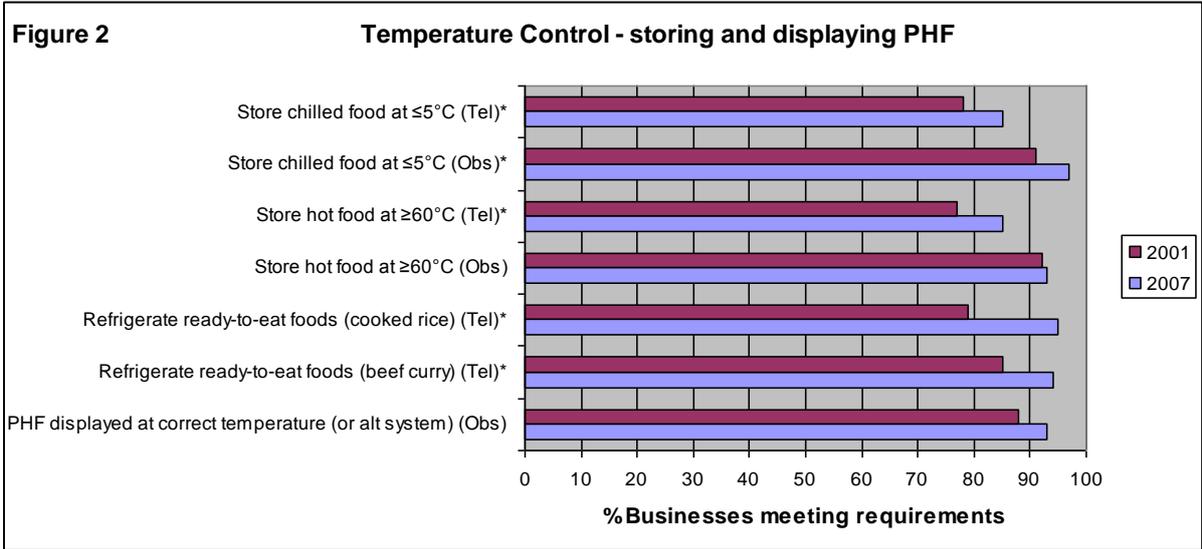
- Twenty percent of businesses did not check the temperature or have an alternative system for ensuring the potentially hazardous food is received at a safe temperature;
- The most common methods of checking the temperature of delivered chilled food was by touch and by looking at it; and
- While only a small number of businesses had hot food delivered, 15% of these did not know how often the temperature of the hot food should be checked or they thought it should never or occasionally be checked. Additionally, 27% of these businesses did not know how the temperature of hot delivered food should be checked or thought it should be checked by touch or by looking at it.

These results indicate scope for improving the knowledge and practices of food suppliers, transporters and businesses that receive potentially hazardous foods, particularly as a quarter of businesses indicated that they have food delivered outside of business hours.

### ***Storing and displaying potentially hazardous food***

Overall, knowledge and practice of storing potentially hazardous foods at the correct temperatures has improved significantly between 2001 and 2007 as indicated by responses to a number of questions in both survey components. Nevertheless, of food businesses that stored chilled or held hot foods, 15% did not know the correct storage temperatures of chilled food and 15% did not know the correct temperature for holding hot foods in the Telephone Survey. However, the proportion observed to follow the correct practice was at a higher level

(97% kept chilled food at or below 5°C, 94% kept hot food at or above 60°C). This indicates that businesses know that chilled food must be kept refrigerated and hot food kept hot, even if they are not aware of the actual temperature requirements. This was also evident in that 94% of food businesses had appropriate and adequate equipment for storing and holding potentially hazardous foods and there was a high level of knowledge that potentially hazardous foods (eg cooked rice, beef curry) need to be kept refrigerated in order to remain safe for use the next day.



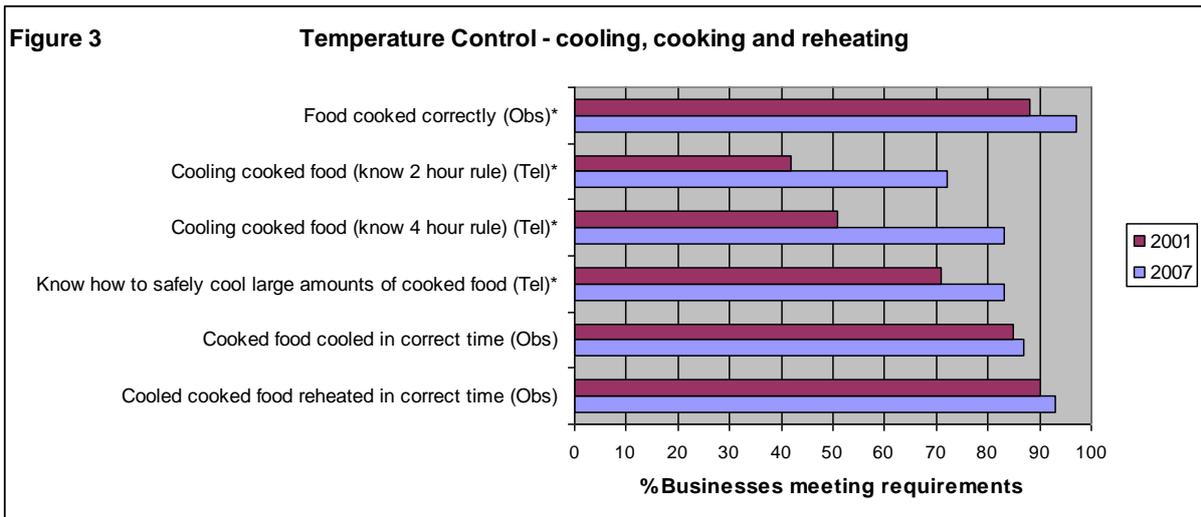
\* indicates a significant difference between 2001 and 2007 survey results  
 PHF = Potentially Hazardous Food  
 Obs = Observational Survey  
 Tel = Telephone Survey  
 Note – number of businesses responding for each question varies

***Cooking, cooling and reheating cooked food***

The proportion of businesses observed to ensure they cook food safely has significantly improved since 2001 (88%) to 97% in 2007.

Even though there was a significant increase in the level of knowledge regarding safe cooling of cooked foods, there is room to improve this result. However, it was encouraging to see that, in practice, more businesses cooled cooked food to the correct temperatures in the correct amount of time. If businesses’ awareness of the importance of temperature control in controlling microorganisms and knowledge of the temperature control requirements can be increased, further gains in businesses safely cooling cooked foods will be realised. This could be assisted by increasing the awareness of the 17% of relevant businesses that did not know that large amounts of cooked food should be portioned and placed in small containers and put in a cool room or refrigerator for cooling.

Ninety four percent of businesses that reheat food did so rapidly or had an alternative system for ensuring the food was reheated safely.



\* indicates a significant difference between 2001 and 2007 survey results

Obs = Observational Survey

Tel = Telephone Survey

Note – number of businesses responding for each question varies

### *Transport of potentially hazardous food*

The observational survey showed that 14% of businesses transported chilled potentially hazardous food, and of these 20% did not transport the chilled food at or below 5°C or have an alternative system for ensuring it was safely transported. Additionally, 10% of all businesses transported hot potentially hazardous foods and of these 16% did not transport the hot food at or above 60°C or have an alternative system to ensure it was safely transported.

### *Analysis of results related to temperature control based on business demographics*

Statistically significantly better results in temperature knowledge and practices were most often seen in businesses where English was the main language spoken compared to those where English was not the main language spoken, large businesses compared to small businesses and those businesses that had a food safety program compared to those without. Specifically, these businesses were more likely to:

- have a probe thermometer;
- have a good understanding of the correct storage temperature of chilled foods and the method and frequency of checking the temperature of frozen and chilled foods;
- have a system for checking the temperature of delivered potentially hazardous food; and
- check the temperature of delivered chilled food with a thermometer

Additionally, businesses where English was the main language spoken were more likely to:

- have adequate equipment to store, process and cook food safely;
- have adequate and appropriate equipment for storing hot potentially hazardous food; and
- cool cooked food to the correct temperature in the correct time, or have a safe alternative cooling system,

than businesses where English was not the main language spoken.

High and medium risk businesses were more likely to have a probe thermometer compared to low risk businesses. They were also more likely to have a better understanding of the correct storage temperatures of chilled food and the method and frequency of checking the temperature of frozen and chilled foods.

Businesses that felt informed about food safety regulations and those that provided food safety training to their staff were more likely to have a good understanding of the correct storage temperature of chilled foods and the method frequency of checking the temperature of frozen and chilled foods compared to their counterparts.

Businesses that supplied food to vulnerable groups were more likely to have a system for checking the temperature of delivered potentially hazardous food and were more likely to check the temperature of delivered chilled food with a thermometer compared to those businesses that do not directly supply food to vulnerable groups.

### *Summary – temperature control*

Survey results show that businesses were cooking and reheating foods safely, they had appropriate and adequate equipment for storing and holding potentially hazardous food and they were aware that potentially hazardous food needs to be kept refrigerated in order to remain safe for use the next day.

When it comes to temperature control, improvements in the number of businesses owning a probe thermometer and the number of businesses being able to use it may lead to improved safety. The area of most concern is the transport and receipt of chilled and hot potentially hazardous foods. The combination of the number of businesses:

- transporting potentially hazardous foods at incorrect temperatures, and
- not frequently checking the temperature of delivered potentially hazardous food or having an alternative system to ensure its safety, or
- not using the appropriate method to check the temperature of that delivered food, provides opportunity for survival and growth of microorganisms in the foods.

Although businesses were observed to store chilled potentially hazardous food in the refrigerator at or below 5°C and hot potentially hazardous food above 60°C, they did not have the knowledge of the specific temperatures for storing these foods.

This was also the case with businesses safely cooling cooked foods. Businesses were observed to safely cool the foods however they did not necessarily know what temperatures to cool the foods to and in what amount of time<sup>9</sup>.

Improvements in the knowledge of the requirements relating to times and temperatures for storing and cooling foods could decrease the likelihood of the occurrence of foodborne illness attributed to these factors.

Businesses that were more likely to have lower levels of knowledge and practices in temperature control were:

---

<sup>9</sup> Sub-clause 7(3) of Standard 3.2.2 requires that a food business must, when cooling cooked potentially hazardous food, cool the food (a) within two hours – from 60°C to 21°C; and(b) within a further four hours – from 21°C to 5°C; unless the food business demonstrates that the cooling process used will not adversely affect the microbiological safety of the food.

- those where English was not the main language;
- small businesses;
- low risk businesses;
- those that did not provide food safety training to their staff; and
- those that did not have a food safety program.

## 2.2 Protecting food from contamination

Protecting food from contamination by staff, raw food and dirty equipment is a key food handling practice. Pathogenic microorganisms from dirt, people, animals, pests, dirty equipment or other food may contaminate unprotected food. Food may also be contaminated by chemicals from spillages or vapours and by physical matter. Businesses were assessed on their knowledge and practices regarding protecting food from contamination from different sources.

The 2007 Survey showed that there were good levels of knowledge and practices about protecting food from contamination, in that:

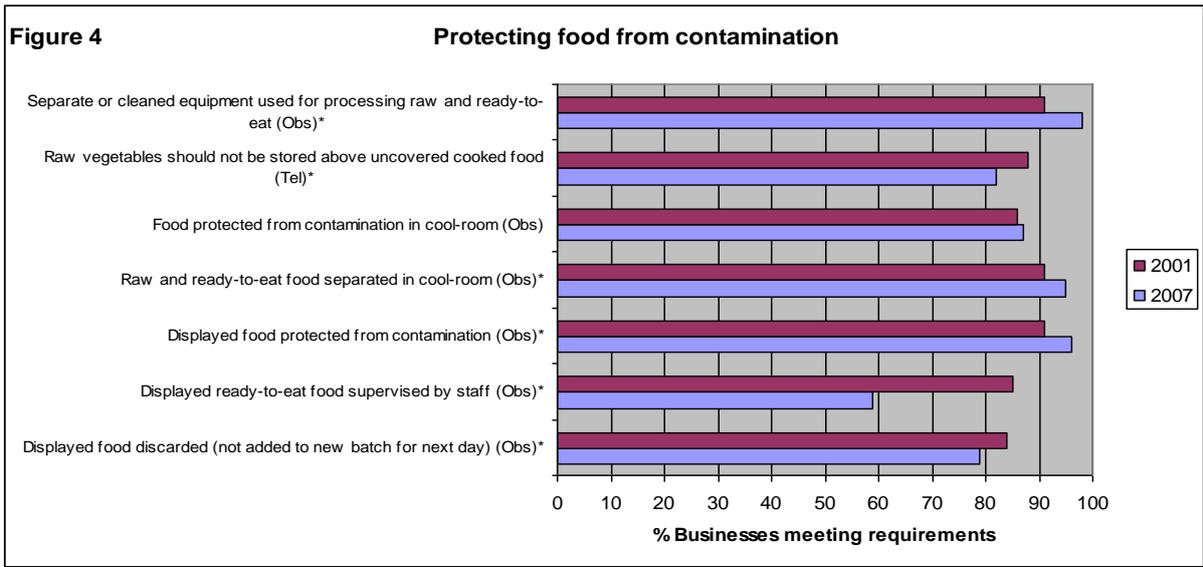
- dry goods were protected from contamination and appeared to be free from pests;
- food on display was protected from contamination;
- raw and ready-to-eat food were appropriately separated in the cool room;
- separate equipment was used for preparing and processing raw and ready-to-eat food or the equipment was cleaned and sanitised between uses;
- staff wore 'clean' outer clothing<sup>10</sup>;
- staff handled ready-to-eat food with utensils or other barriers; and
- knowledge and practices of the correct use of disposable gloves was high.

However, there was a decline in knowledge (down from 88% in 2001 to 82% in 2007) about storing raw vegetables above uncovered cooked food in the cool room. In addition, in spite of a significant increase (to 95%) in food businesses' practices keeping raw and ready-to-eat foods separated in the cool room, upon observation, there was still a proportion of businesses (13%) that did not have all food protected from contamination in the cool room or refrigerator.

Of further concern was the significant increase (15% in 2001 increasing to 41% in 2007) in the proportion of businesses observed to display ready-to-eat food intended for self-service without staff supervision, and that there were significantly more businesses (16% in 2001, 21% in 2007) that had food on display that, at the end of the day, added the food to the new batch for display the next day.

---

<sup>10</sup> In assessing the cleanliness of staff clothing the Environmental Health Officer was instructed to consider the level of cleanliness for the food in question. For example, a butcher's outer clothing is not expected to be as clean as the clothing of a food handler making sandwiches.



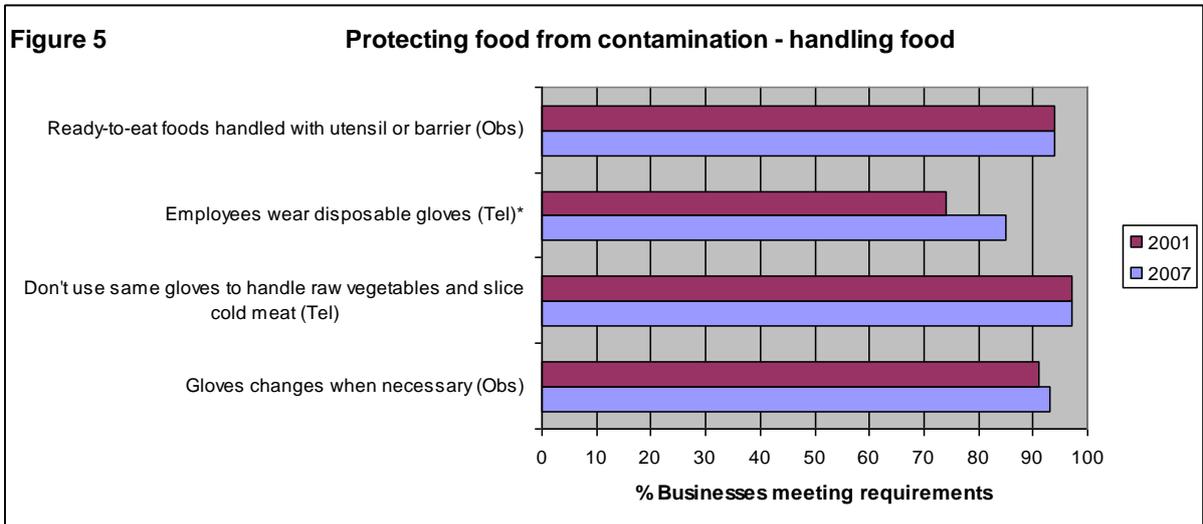
\* indicates a significant difference between 2001 and 2007 survey results

Obs = Observational Survey

Tel = Telephone Survey

Note – number of businesses responding for each question varies

While practices in relation to handling ready-to-eat food with utensils or other barriers were at a high level (94%), knowledge results from the Telephone Survey relating to handling ready-to-eat food were at a much lower level: 28% of businesses did not know it was not safe to directly touch bread, and 14% of businesses did not know it was not safe to directly touch ham (a significant decrease from 90% in 2001). This indicates an area where intervention might improve compliance, for example, education on directly handling food.



\* indicates a significant difference between 2001 and 2007 survey results

Obs = Observational Survey

Tel = Telephone Survey

Note – number of businesses responding for each question varies

***Analysis of results relating to protecting food from contamination based on business demographics***

Businesses that were more likely to appropriately separate raw and ready-to-eat food in the cool room were large businesses compared to small businesses and businesses with a food safety program compared to those that did not have one.

Businesses where English was the main language spoken were more likely to protect food in the cool room and their dry goods from contamination compared to those businesses where English was not the main language spoken.

### *Summary – preventing contamination*

Businesses were already acting to protect their raw and ready-to-eat food from contamination. This included protecting their dry goods and food on display from contamination, separating their raw and ready-to-eat food in the cool room and using separate equipment for preparing and processing raw and ready-to-eat food or cleaning and sanitising the equipment between uses. Staff were also found to wear clean outer clothing and to correctly use disposable gloves.

Although raw and ready-to-eat foods were being separated in cool rooms, improvements in the knowledge and practices of businesses could result in greater protection of food from contamination. Considering that one of the most common problem areas for cleanliness was the cool room, not protecting the food in the cool room may result in a higher likelihood that the food will become contaminated.

More businesses leaving ready-to-eat food intended for self-service unsupervised by staff and more businesses adding food that has been on display to new batch the next day could lead to reduced food safety. The latter may be a breach of the requirements of the Food Safety Standards, as there is a likelihood that the food could have been subjected to temperature abuse and/or possible contamination and therefore transmit contamination to the new batch of food.

Businesses that were more likely to have poorer practices in protecting food from contamination were:

- those where English was not the main language spoken;
- small businesses; and
- those that did not have a food safety program.

## **2.3 Cleaning and sanitising**

Businesses are required under the Food Safety Standards to ensure that only clean and sanitary eating and drinking utensils and food contact surfaces are used. This is to minimise the risk of transferring pathogenic microorganisms to food and to customers.

If a business cleans and sanitises eating and drinking utensils and food contact surfaces by hand they can sanitise using either a chemical sanitiser or hot water. However, using a properly working dishwasher is generally 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.

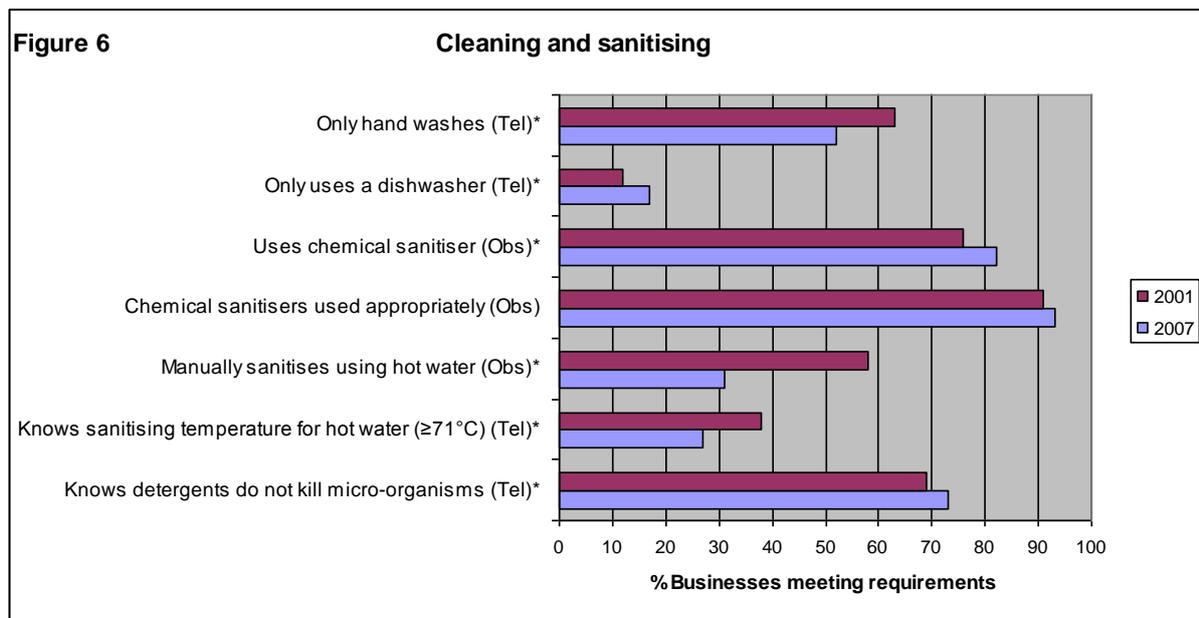
The Survey sought to identify the proportion of businesses that either used a dishwasher, hand-washed or both, and the methods used to manually sanitise eating and drinking utensils and equipment.

It was encouraging to see that there was an increase in the number using dishwashers and also an increase in the proportion of businesses that *only* used a dishwasher and a decrease in the proportion that *only* hand-washed.

For businesses that hand-washed utensils, the knowledge of the temperature of hot water required to kill microorganisms has declined significantly since 2001 (38%) to 27% in 2007. Additionally, knowledge of the temperature of the final rinse of dishwasher cycles was 35%. This could be attributed to the automation of the equipment and the expectation of the business that the dishwasher ‘works’. On observation of the actual sanitising time and temperature of dishwashers, the number of businesses with dishwashers operating below the recommended temperature of 77°C or above has increased from 17% in 2001 to 38% in 2007, and the sanitising cycle only lasted a short time. This was also the case for businesses that used hot-water glass washers.

It was difficult to draw conclusions on the level of knowledge about the use of chemical sanitisers as these questions in the Telephone Survey were asked in isolation of questions about using hot water to sanitise equipment and utensils. For example, when asked in the Telephone Survey how often a chemical sanitiser should be used, the respondents may have answered ‘never’ (8% in 2007) because they used hot water as a means of sanitation. However, the Observational Survey showed that, of the businesses that sanitised equipment manually with hot water (31% in 2007), 92% used water with a temperature too low to be effective in killing microorganisms. In addition, the fact that 27% of businesses still incorrectly believed that detergents kill microorganisms indicates a gap in knowledge regarding methods of sanitising.

For this reason it was encouraging that there was observed to be an increase in the number of businesses using chemical sanitisers since 2001 (76% in 2001 increasing to 82% in 2007) and that they were being used appropriately by most of these businesses (93%).



\* indicates a significant difference between 2001 and 2007 survey results

Obs = Observational Survey

Tel = Telephone Survey

Note – number of businesses responding for each question varies

### *Analysis of results relating to cleaning and sanitising based on business demographics*

Large businesses, businesses with a food safety program and businesses where English was the main language spoken were more likely to use a commercial dishwasher and to use chemical sanitisers compared to their counterparts.

#### *Summary – cleaning and sanitation*

Cleaning and sanitation was an area that was difficult to assess in such a broad survey. It is recommended that further survey work should be undertaken if there is a desire to get a more detailed analysis of the degree of compliance with the requirement of the Food Safety Standards and reasons why some businesses may not comply.

Despite the difficulty in analysing the results, the Survey does indicate that there is a problem with the sanitising of equipment and utensils by businesses. More encouragement for businesses to use commercial dishwashers and ensure they are operated correctly or, when manually sanitising, to use a chemical sanitiser could improve the likelihood that utensils and equipment are effectively sanitised. However, more research would assist to determine with greater certainty the sanitising effectiveness of dishwashers, and the knowledge and practices of the staff that operate them.

Businesses that were more likely to have poorer practices in cleaning and sanitation were:

- those where English was not the main language spoken;
- those without a food safety program; and
- small businesses.

## **2.4 Personal hygiene and staff illness**

Staff are a potential source of pathogenic microorganisms and foreign matter that could contaminate food. The contamination may originate from the food handler's body such as intestinal, respiratory or skin microorganisms, or foreign material and microorganisms from clothing. Hand washing practices and ensuring that there are adequate facilities for hand washing are key components of personal hygiene.

Additionally, staff that are unwell with an illness that may be foodborne, or who may be a carrier of such an illness, can transmit that illness through food if they are at work. The Food Safety Standards require businesses to control the transmission of illness from food handlers who are ill, have symptoms or otherwise might transmit the pathogens they are, or may be, carrying.

There were several significant improvements in the hand-washing facilities provided at food businesses, with 90% or more businesses providing:

- sufficient hand-washing facilities (83% in 2001, 93% in 2007);
- hand-washing facilities that were accessible to employees (89% in 2001, 94% in 2007); and
- warm running water in hand-washing facilities (85% in 2001, 90% in 2007).

However, results also indicate that a proportion of staff were not hand-washing correctly. For example, 12% of businesses had staff that did not wash their hands in the designated hand-washing facilities and 13% of businesses had staff that did not wash and dry their hands correctly. There were also 16% of businesses where the hand-washing facilities did not show evidence of recent use and 15% that did not have single-use towels supplied. Additionally, 7% of businesses did not have soap or hand cleanser supplied at the hand-washing facilities. Although this result represents a relatively small proportion of businesses this is a critical aspect of personal hygiene to prevent contamination of food. Overall, these results indicated small improvements compared to 2001 for some of the indicators, but there were no improvements since 2001 for others.

These combined results indicate that improvements in the provision of adequate facilities and staff use could impact positively on food safety.



\* indicates a significant difference between 2001 and 2007 survey results  
 Note – number of businesses responding for each question varies

Businesses knew that an employee with diarrhoea should not be at work at all (53%) or should not have anything to do with food or food implements (49%). Results have improved to show almost all businesses (97%) have staff cover wounds with a waterproof dressing. However, in regard to a key food safety measure, a policy relating to staff that are unwell, 11% of businesses in 2007 did not have such a policy, in spite of a significant improvement since 2001 (89% in 2007, 79% in 2001).

These results indicated that personal hygiene and policies to address staff illness are areas where improvements are warranted.

***Analysis of results relating to personal hygiene and staff illness based on business demographics***

Accessible hand-washing facilities were more likely to be observed among businesses that had a food safety program compared to those that did not have a food safety program.

Warm running water in the hand-washing facilities was more likely to be observed in non-metropolitan businesses compared to metropolitan businesses.

Generally, businesses in which English was not the main language spoken were more likely to be observed with inadequate hand-washing facilities and poorer staff hand washing practices than businesses where English was the main language spoken. Specifically, improvements for this group could be made in the following areas:

- accessibility of hand-washing facilities;
- provision of soap or hand cleanser and single use towels in hand-washing facilities;
- using designated hand-washing basins; and
- staff hand-washing practices, including washing hands when necessary and using soap, warm running water and single use towels.

### *Summary – personal hygiene and staff illness*

Although the provision of adequate hand-washing facilities has improved, education of staff on when, how and how often hands should be washed should further improve food safety practices.

Businesses could be encouraged to have a policy for staff that are unwell because it provides a mechanism for businesses to understand and articulate their obligations under Standard 3.2.2 as well as providing a means of informing staff of their obligations as food handlers.

Less adequate hand-washing facilities and practices were more likely to be observed in:

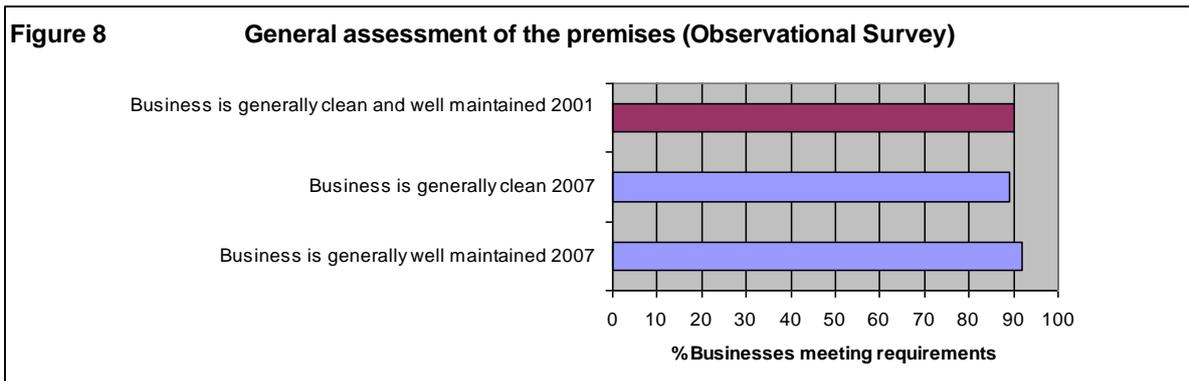
- businesses where English was not the main language spoken;
- businesses without a food safety program; and
- metropolitan businesses.

## **2.5 General assessment of premises**

The Observational Survey sought information about cleanliness, maintenance, lighting, ventilation, presence of pests and storage of chemicals in food premises.

The survey showed there have been several significant improvements since 2001 and overall, almost all (97% or more) businesses had adequate lighting and ventilation, appeared to be free from pests and stored chemicals correctly. Similar to 2001, 92% of businesses were considered to be well maintained.

Eighty-nine percent of businesses were considered clean overall, however, results indicated that greater attention should be paid to the cleanliness of certain areas of some premises. The main problem areas were identified as the preparation and cooking areas followed by the dry goods storage area and cool room.



*Analysis of assessment of premises based on business demographics*

Businesses where English was the main language spoken were more likely to be considered clean and well maintained compared to those businesses where English was not the main language spoken. These businesses were also more likely to contract a pest control company or have a pest control program. This was also the case for metropolitan compared to non-metropolitan businesses and large compared to small businesses.

*Summary of improvements needed in the level of knowledge and practices about maintaining premises*

Businesses were generally found to be well maintained, free from pests, to have adequate lighting and ventilation and to safely store chemicals. However, general cleanliness of premises can be improved, particularly in the cooking areas, dry good storage areas and cool rooms.

General assessment of premises was more likely to be poorer in businesses where English was not the main language spoken

**2.6 Staff food safety training**

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 they carry out. 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.

The Telephone Survey sought information on staff training. In 2007, 89% of food businesses provided training to staff about food safety, a significant increase since 2001 (74%). In 2007 the most common form of training was informal or on-the-job training followed by utilising external staff training programs and induction programs at the workplace.

*Analysis of staff training based on business demographics*

Businesses that were more likely to provide food safety training to their staff included:

- high risk businesses, compared to medium and low risk businesses;
- large businesses compared to small businesses; and

- those that felt well informed about current food safety regulations compared to those that did not feel well informed;

High risk businesses were the most likely to utilise external training programs compared with medium and low risk businesses.

***Summary of improvements needed in the level of knowledge and practices relating to staff food safety training***

The Telephone Survey showed that businesses that provided training to their staff generally had higher levels of knowledge about food safety than those businesses that did not provide any staff training. Therefore, if there can be greater focus on and support for businesses to provide food safety training to their staff, this should result in an increase in the safe food handling knowledge among food businesses. In turn, this should result in safer food handling practices being employed and a consequent reduction in the likelihood of foodborne illness.

However, it should be noted that it was not always the case that businesses that provided training to their staff performed better than their counterparts (although they never performed worse). Further survey work is recommended to analyse the type and quality of food safety training being provided and to establish what training results in better food safety knowledge and practice levels.

Businesses that were less likely to provide food safety training to their staff were:

- low risk businesses;
- small businesses; and
- those that did not feel well informed about food safety regulations.

Medium and low risk businesses were less likely to utilise external training programs compared to high risk businesses.

## **2.7 Food recall plans**

Businesses engaged in the ‘wholesale supply, manufacturer or importation of food’<sup>11</sup> are required to have in place a (written) 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.

Although there was a significant increase in manufacturers and wholesalers (the categories identifiable in the Survey) having a food recall plan since 2001 (27% in 2001, 50% in 2007), half of those businesses that are required to have a system to recall unsafe food did not have one in place. Therefore, this is an area where there could be improvements in compliance with this requirement of the Food Safety Standards.

***Summary – food recall plans***

Greater attention is needed to ensure relevant businesses have a system in place to ensure the recall of unsafe food.

---

<sup>11</sup> Specified in Clause 12 of Standard 3.2.2 – Food Safety Practices and General Requirements, in the Food Standards Code.

## 2.8 Food Safety Programs

Although Standard 3.2.1 *Food Safety Programs* was not a mandatory Standard at the time of the survey (Victoria is the only State that requires all businesses, except low risk businesses, to have a documented food safety program)<sup>12</sup>, businesses were asked about food safety programs to determine their prevalence among food businesses in Australia. No assessment was made of any difference between businesses that were legislatively required to have a food safety program (eg. in Victoria) versus those businesses that chose to develop a food safety program for their own business reasons and therefore were not subject to regulatory influences. This could be an area for further investigation.

When asked in the Telephone Survey, 81% of all businesses said they had heard of Food Safety Programs, Food Safety Plans or HACCP (78%, excluding Victorian businesses) and 66% said their business had a Food Safety Program (60%, excluding Victorian businesses). However, upon observation, 39% of businesses had a Food Safety Program (24%, excluding Victorian businesses).

The results from the Observational Survey could be lower than those for the Telephone Survey because the Environmental Health Officer conducting the survey was instructed to check that the Program identified food safety hazards and ways to control and monitor these hazards. This excluded businesses that potentially over-reported in the Telephone Survey because they believed their staff work instructions or other documents constituted a Food Safety Program.

### *Analysis of food safety programs based on business demographics*

The data from the Observational Survey indicated that businesses that were more likely to have a Food Safety Program included:

- high and low risk businesses compared to medium risk businesses
- large compared to small businesses
- businesses that supply food to vulnerable groups compared to those that do not
- businesses in which English was the main language spoken compared to those in which English was not the main language
- caterers compared to non-caterers

In general, greater knowledge and safer food handling practices were identified in businesses with a food safety program.

### *Summary – food safety programs*

Results demonstrate that having a food safety management system where the business identifies, considers and documents, in advance, how they intend to ensure they make safe food (i.e. – how they will meet their obligations under the Food Safety Standards, including Standard 3.2.1) and subsequently monitor their processes and fix problems as they arise, has a positive impact on the level of safe food handling knowledge and practices for these businesses.

---

<sup>12</sup> Standard 3.3.1 – Food Safety Programs for Food Service to Vulnerable Persons, came into effect in October 2008.

## **2.9 Sources of food safety information**

The Australian, State and local governments provide advice to 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 food regulatory authorities to know where food businesses primarily seek food safety information so that they can target the dissemination of the information most effectively. Therefore, the Telephone Survey sought information on where businesses seek food safety information and whether they are finding it easy to locate such information.

It appears that, since 2001, businesses are finding it easier to locate food safety information (85% of businesses in 2007, a significant increase from 68% in 2001, said that food safety information was easy to find). The most frequently used sources were the local council and Environmental Health Officer, State and Territory government health departments and industry associations.

The 2001 Survey results showed that virtually no one was using the internet, internal/external food safety auditors or quality assurance personnel as sources of food safety information at that time. In 2007, these were the sources that saw the biggest rise in frequency of use, followed by FSANZ, as a source of food safety information.

### *Analysis of sources of food safety information based on business demographics*

Small businesses and businesses in non-metropolitan areas were more likely to mention local councils, EHOs and health inspectors as a source of food safety information. Large businesses were more likely to contact internal or external food safety auditors or FSANZ. High risk businesses were more likely to contact FSANZ than medium or low risk businesses.

## **2.10 Awareness of and changes in practices as a results of the introduction of the Food Safety Standards**

In the Telephone Survey businesses were asked whether they were aware of the Food Safety Standards that were introduced by governments between 2001 and 2003 and how informed they were about current food safety regulations.

Eighty-six percent of businesses said they were informed, well informed or very well informed about current food safety regulations. Even so, 14% of businesses that indicated they lacked knowledge about food safety regulations. Furthermore, 38% of businesses said they did not know about the introduction of the Food Safety Standards. This may have been due in part to businesses being unaware of the new 'national food safety standards' as referred to in the Telephone Survey, even though they might have been aware of food safety regulations implemented in their respective jurisdictions.

Of the businesses that indicated they were aware of the introduction of the new Food Safety Standards over half said they had changed their practices as a result. The most common changes were educational requirements for staff, the way food is handled and equipment and surface washing practices. A third of the businesses had not made any changes and the remainder were unsure. The main reason businesses said they did not change their practices was that they were already compliant with the new Standards. Other reasons given were that the business was established after the Standards were introduced or that the Standards did not

apply to them. Only a very small minority (1%) said the Standards were impractical to implement.

*Analysis of changes in practice based on business demographics*

Generally, large businesses, high risk businesses, those with a food safety program and those that provide staff training were more likely to feel well informed about food safety regulations.

Large businesses, high risk businesses, those with a food safety program and those businesses that supply food to vulnerable groups were more likely to have changed their practices as a result of the introductions of the Food Safety Standards compared to their counterparts.

*Summary – awareness of food safety regulations*

Businesses that felt they were informed about current food safety regulations were more likely to provide food safety training to their staff than those businesses who said they were not informed. Provision of additional information on food safety regulations, particularly to small businesses and low risk businesses, may promote staff training and in turn lead to safer food handling due to improvements in food safety knowledge.

### **3. Bakeries and sushi manufacturers**

In response to concerns raised by food regulatory authorities, the 2007 National Food Handling Survey was used as an opportunity to gather some specific information on the safe food handling knowledge and practices of sushi and bakery businesses.

#### **3.1 Bakeries**

In recent years there has been a number of food poisoning incidents associated with poor food handling in bakery 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<sup>13</sup>.

A comparison was made of responses to specific questions by bakeries and other types of food businesses in the Telephone and Observational Surveys. In the Telephone survey, bakeries were identified as those that prepared fresh bread, pastries and/or pies for sale and distribution. In the Observational Survey, EHOs identified businesses that made pastries, pies, cakes and other bakery products on the premises, either for direct sale to the public or for distribution to other businesses. The Observational Survey definition of 'bakery' did not include businesses that manufactured bread only. The Observational Survey included specific modules of questions relevant to the food handling practices that have been implicated in food poisoning outbreaks.

##### *Temperature control*

Bakeries demonstrated higher levels of knowledge and practices in several key areas of temperature control, particularly in comparison to all other businesses. For example more bakeries had a probe thermometer and had higher levels of knowledge and practices in controlling the temperature of potentially hazardous foods.

Areas of safe knowledge and practices in relation to temperature control that need improvement were similar to those of all businesses.

##### *Protecting food from contamination*

In a similar proportion to all businesses, bakeries had staff that used utensils or other barriers when handling ready-to-eat food, changed their disposable gloves when necessary and had safe practices when it came to preparing raw and ready-to-eat foods.

Areas where bakeries should improve their knowledge and practices were:

- storage of raw and ready-to-eat food in the refrigerator or cool room;
- storage of dry goods;
- directly touching food; and
- supervision of displayed ready-to-eat food intended for self-service.

---

<sup>13</sup> The *Food Standards Code* prohibits making cracked eggs available for retail or catering purposes.

### ***Cleaning and sanitation***

As would be expected due to the nature of the businesses, the two surveys showed that hand-washing of containers and utensils was more common in bakeries than other businesses and the use of dishwashers was less so. There were no significant differences between bakeries and all businesses in the knowledge or general practices of safe cleaning and sanitation practices. However, there was more of a concern where EHOs looked in more detail at the cleaning and sanitation of piping bags.

### ***Use of piping bags in bakeries***

Most bakeries used piping bags and the majority (87%) of these businesses used reusable bags. However, 17% of businesses using reusable piping bags did not adequately clean and sanitise the bags between uses and there was evidence that some piping bag nozzles were being stored in soiled containers.

Eight percent of bakeries were observed to use the same piping bag for more than one product (i.e. cream and meat products).

### ***Personal hygiene and staff illness***

A lower proportion of bakeries compared to all food businesses provided sufficient hand washing facilities, provided hand washing facilities accessible to employees and had staff that washed their hands in the designated hand washing facility.

A similar proportion of bakeries, compared to all businesses, were well informed about the responsibilities of staff that are unwell and had a policy relating to staff that were unwell.

### ***Food Safety Programs***

A similar proportion of bakeries compared with all food businesses were aware of, and had, food safety programs.

### ***Use of egg and egg products in bakeries***

The results show that approximately three quarters of bakeries used shell eggs in their food preparation while over a quarter used egg products (eg. egg pulp).

Shell eggs and egg products were mainly sourced from a wholesaler or supplier (71% of shell eggs purchased, 79% of egg products) but there were a number of businesses sourcing shell eggs (16%) and egg products (14%) from farms.

Almost all (99%) bakeries had shell eggs that were visibly clean. However, 19% of bakeries had eggs on the premises with visible cracks.

### ***Summary of results and recommendations for bakeries***

The areas of safe food handling knowledge and practices amongst bakeries that needed improving were similar to those of all businesses. Therefore it would not be necessary to specifically target education or compliance activities of these areas to bakeries alone.

The results show there is a need for bakeries to improve the cleaning and sanitising practices of piping bags, particularly considering a small proportion of businesses were identified as using the same piping bag for more than one product.

The use of cracked eggs by food service businesses, including bakeries, is considered risky as the eggs have a much higher likelihood of becoming contaminated with pathogenic microorganisms. If contaminated eggs are used in non-heat-treated products (eg – custard, mousse, mayonnaise etc) this can increase the risk of these foods causing foodborne illness, especially if they are subject to temperature abuse. Alternatively, contaminated cracked eggs can cross-contaminate other ready-to-eat products which could also result in foodborne illness. This concern is warranted as the results of the Survey show there is a likelihood that staff may not wash their hands properly or when necessary (eg- between handling raw and ready-to-eat foods) and that equipment and utensils, particularly piping bags, may not be being adequately cleaned and sanitised.

### **3.2 Sushi makers**

In recent years there has been some concern by food regulatory authorities that sushi makers preparing large quantities of rice and final sushi product in advance are not applying appropriate controls to ensure its microbiological safety. Interest has focussed on whether sushi rice and final sushi products are kept under refrigeration or whether vinegar is added to the cooked rice as an alternative to refrigeration.

The 2007 Survey assessed the level knowledge and practices between sushi makers and other types of food businesses by comparing the responses to specific questions in both the Telephone and Observational Surveys. In the Telephone survey, sushi makers were identified as those that said they made sushi on the premises. In the Observational Survey, EHOs were asked to identify whether the business made sushi products<sup>14</sup> on the premises, either for direct sale to the public or for distribution to other businesses. The Observational Survey included specific modules of questions relevant to the safe production of sushi rice and final product.

#### *Temperature control – comparison with other food businesses*

In the Telephone survey, sushi makers were asked the same questions about their knowledge and practices in safe temperature control as other businesses. The Survey results indicate that a lower proportion of sushi makers had knowledge of the temperatures that hot and chilled potentially hazardous food should be stored compared to other food businesses. However, the results of the Observational Survey showed that, in practice, a similar proportion of sushi makers stored hot and chilled potentially hazardous foods at the correct temperatures or had an alternative system to ensure it was stored safely, compared to all other businesses.

Less sushi makers displayed their potentially hazardous food under temperature control compared to all businesses. However, more sushi makers had an alternative system for ensuring its safety. The question from the Observational Survey did not require details or the alternative system to be provided, however it is possible to safely display (or store) sushi and

---

<sup>14</sup> ‘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

sushi rice up to 15°C if the pH of the rice is <4.8 (Victorian Department of Human Services, 2004). Details of the data collected on the acidification of sushi rice are given below.

Similar to other businesses, 21% of sushi makers did not have a probe thermometer and therefore had no way of measuring the temperature of food. There was also no difference in the proportion of sushi makers and other businesses that did not check that their potentially hazardous food was received at a safe temperature, or had an alternative system for ensuring the safety of the delivered food. However, the level of knowledge sushi makers had about the temperature for delivered food was better than other food businesses.

For sushi makers, temperature control is an area where results indicated that safe knowledge and practices could be improved. For example:

- knowledge that the temperature of delivered chilled food should be checked using a thermometer or temperature probe;
- knowledge that chilled food should be stored at or below 5°;
- knowledge that hot food should be stored at 60°C or above; and
- checking that delivered potentially hazardous food is received at a safe temperature.

### *Acidification of sushi rice*

It is possible to safely display or store sushi and sushi rice up to 15°C if the pH of the rice is less than 4.8. The pH of sushi rice is lowered by the addition of an acidic substance, usually vinegar, to a level of at least 110 mL to every 1 kg of cooked rice (Victorian Department of Human Services, 2004). In addition to the main Observational Survey, Environmental Health Officers were instructed to observe whether sushi makers applied temperature controls and/or acidified the sushi rice to ensure the safety of the rice and final sushi product.

Just under half of the sushi makers prepared sushi rice in advance and stored it for later use. All of these businesses either stored the rice in refrigeration ( $\leq 5^{\circ}\text{C}$ ) or acidified the rice. Just over half of the businesses that prepared rice in advance kept the rice for less than half a day (up to 12 hours), another quarter kept it for one to two days and under a quarter did not know how long they kept the rice before it was used.

Over three quarters of sushi makers prepared final sushi product in advance of serving or sale. All of these businesses either stored the sushi in refrigeration ( $\leq 5^{\circ}\text{C}$ ) or acidified the rice. A quarter of sushi makers displayed sushi for sale out of refrigerated temperature. Of these businesses half had a system to determine the amount of time the sushi had been on display while the other half did not.

Just under half of all sushi makers stored their sushi rice or final sushi product out of refrigeration. However, all of these businesses added vinegar to the rice. Of the sushi makers that acidified the rice, three quarters correctly added at least 110 mL to every 1 kg of cooked rice. There was only a small proportion (6%) that monitored the pH of the rice but, of those that did, they all had a pH of the rice  $\leq 4.8$ .

### *Protecting food from contamination*

Areas where sushi makers' knowledge and practice could be improved in order to prevent food from being contaminated were:

- appropriate use of disposable gloves when undertaking cleaning activities and then handling clean food utensils;
- the safe storage of raw and ready-to-eat food in the refrigerator or cool room; and
- directly touching food.

### *Disposal of sushi*

Retail and hospitality businesses that made sushi were asked what happened to unsold sushi at the end of the day. Eighty-six percent of those businesses discarded unsold product and just over half said they gave it away to staff and friends on occasions. Five percent of retail and hospitality businesses indicated that unsold sushi was sold the next day and 3% used it in the manufacture of other products.

### *Cleaning and sanitation*

Sushi makers were more likely to use a dishwasher and less likely to hand-wash containers and utensils compared to other businesses. Those businesses with dishwashers used commercial dishwashers and no domestic dishwashers were observed.

Results from the Telephone Survey indicate sushi makers are better informed about the appropriate temperature for sanitation, including the use of hot water for manual sanitation and the final rinse of a dishwasher.

### *Personal hygiene and staff illness*

Sushi makers were well informed about the responsibilities of staff that are unwell with a potential foodborne illness. Similar to all businesses, 85% of sushi makers had a policy relating to staff that were unwell.

### *Food Safety Programs*

Sushi businesses were similar to all food businesses in regard to awareness of and proportion of businesses with a food safety program.

### *General assessment of the premises of sushi makers*

Ninety- six percent of sushi makers had adequate equipment for preparing food. Compared to all businesses, fewer sushi businesses had adequate lighting or actively controlled pests.

### *Summary of results and recommendations for sushi makers*

The areas of safe food handling knowledge and practices amongst sushi makers that needed improving were similar to those of all businesses. Therefore it would not be necessary to specifically target education or compliance activities of these areas to sushi makers alone.

There were some specific aspects of sushi manufacture where additional improvements could be made. Improvements are needed by a proportion of sushi makers to ensure they have a system to determine how long cooked rice is kept before being used and how long sushi has been kept on display out of refrigerated conditions. It also appears to be necessary for sushi makers to ensure they are adding the correct amount of acidic solution (ie – vinegar) to the sushi rice to make certain of its safety if the rice or final sushi product is stored out of refrigerated conditions. Most sushi makers also seemed unaware or considered it unnecessary to monitor the pH of the acidified rice.

A possible area of concern was that there are a small number of businesses selling unsold sushi the next day or using it in the manufacture of other products. However, it may be necessary to collect more information on how safely this sushi had been handled on its day of manufacture in order to determine if this presents a problem.

Effort could also be focussed on educating sushi makers about pest control.

#### **4. Limitations and lessons learnt for future surveys**

Limitations of the Telephone and Observational Surveys were identified prior to their commencement and have been discussed in the Final Report (§4.3). However, further limitations were identified after the Surveys had been completed:

- In evaluating the Food Safety Standards FSANZ acknowledges that improvements in food safety practices that are found will not simply be a result of the Standards but are likely to be the result of the collaborative work of the food regulatory authorities and the food businesses to achieve compliance. This survey was not designed to attribute improvements or otherwise in safe food handling knowledge and practice to specific implementation activities of the regulators or to the standards themselves.
- At the time of planning the 2007 Survey, there were difficulties in sourcing an appropriate database from which to draw the sample of food businesses to be surveyed. The database used for the 2001 Benchmark Survey, the 'Yellow Pages Online', has not been updated since approximately 2004 and was no longer considered suitable. Therefore, the commercially available 'Australia on Disc' database of Australian businesses was used to draw the 2007 survey sample. At the time it was noted that while this database was the best available it was not perfect. While a random sampling approach was used, limitations of the database may have been partially responsible for the differences in business demographics between the two surveys (refer to Appendix 2 of this report and Appendix F of the 2007 Survey Final Report), particularly in the number of manufacturing and processing businesses surveyed (Telephone Survey: 13% in 2001 and 3% in 2007, Observational Survey: 7% in 2001 and 3% in 2007). The lack of a national database of Australian food businesses highlights a need for a reliable and nationally consistent means of identifying different types of food businesses and their activities.
- The survey questionnaire had been designed to provide data that accurately reflects the requirements of the Food Safety Standards while being easily understood and not open to misinterpretation by the respondent or the person asking the questions. In some instances specific requirements in the Food Safety Standards have been interpreted and simplified in the questionnaire and associated 2007 Survey Final Report. This may mean specific results may not be attributable to specific requirements in some sections, but provide an overview of knowledge and practice for key food safety areas. For example, for ease of administering the survey and interpreting the results Food Safety Standard requirements relating to temperature control of delivered food have been simplified so that businesses were asked if they check the temperature of delivered potentially hazardous food or if they have an alternative system for ensuring its safety.
- It was acknowledged prior to the commencement of the Observational Survey that it may not be possible for EHOs to observe all food handling practices within the one hour visit. However, there were some questions where it was expected that observations could be made but in fact there were unexpectedly low observation rates. For example, it was expected that EHOs would be able to observe whether or not a business had a dishwasher, a recall plan or whether or not there was adequate space for potentially hazardous food in the cool room/refrigerator. An explanation of the results could be that, despite the survey explanatory material provided to EHOs, some may have thought they

should only mark the question as being observed if they saw the dishwasher or food recall plan being used not just that it existed. Unfortunately resource limitations did not allow for analysis to substantiate the reasons some questions had low observation rates.

- The reliability of the results of dishwasher sanitising temperatures and length of cycles is questionable. EHO's had difficulty measuring the actual temperature and observing the actual cycle length. The responses are a combination of observations and the temperature and cycle length estimated by the EHO. This therefore reduced the reliability of the results of this section considerably. This could be an area for more targeted research to allow more time and detailed observations/ measurements to get more accurate data on dishwasher sanitising temperatures and cycle lengths.
- Unintentionally, the scales used for the questions about the temperature of the final rinse/sanitising cycle of a dishwasher were different between the Telephone and Observational Surveys and therefore the results were not directly comparable. This should be rectified in any future surveys.
- The knowledge questions about the temperature required to kill microorganisms when washing containers and utensils did not take into account the amount of time the utensils were exposed to water. This would have resulted in a complex mix of responses and therefore, this is an area that could be explored further in any future targeted surveys.
- The Telephone Survey was targeted at the person responsible for managing staff who handle food in the day-to-day operation of the business, for example, the owner, manager or supervisor. Results may have differed if the survey had been targeted at other food handling staff
- In relation to this Interpretive Summary, there is an overall limitation of interpreting groupings of results (for example, questions and results in both the Telephone and Observational Surveys relating to cooking, cooling and reheating cooked food) as the public health significance of a group of results may be different to individual results. Additionally, there is a difference in the concept of 'public health significance' and 'statistical significance'. The results of a specific question may be statistically significant but may not be of overall public health significance.

EHOs were also asked to provide feedback about their involvement in the Observational Survey (refer to Appendix F of the Final Report). Some comments indicated reasons for low observation rates including that, due to the length of the survey, some EHOs asked a lot of the questions instead of observing practices or they visited the business during quieter times and hence could not observe actual food handling practices.

Lessons learnt for future surveys would be to shorten the survey or break it into smaller more targeted surveys on specific aspects of food safety. This would allow for more detailed analysis of any problem areas. It was also suggested by EHOs that, in order to get a more accurate picture, the survey should be targeted at food handlers rather than business owners and that questions that cannot be observed should not be asked.

## **5. Conclusion**

The introduction and implementation of the Chapter 3 Food Safety Standards appears to have had a positive impact on the safe food handling knowledge and practices among food businesses in Australia. Overall, the 2007 National Food Handling Survey has demonstrated that there have been several significant improvements in key food safety areas since the introduction of the Food Safety Standards. It is considered that these improvements in knowledge and behaviour of safe food handling since the introduction of the Food Safety Standards are likely to have led to consequent improvements in overall food safety and public health.

The survey has also shown that there are some key businesses demographics where greater focus is needed than others, in particular businesses where English is not the main language spoken and small businesses.

The findings of the survey for bakeries and sushi manufacturers were similar to those for all businesses indicating it is not necessary to specifically target education or enforcement of key food safety areas to these businesses. However, there are some specific food handling practices that could be targeted; cleaning and sanitising of piping bags and use of cracked or dirty eggs in bakeries and monitoring the pH of cooked acidified rice in sushi businesses are areas that would benefit from an additional focus. While these are practices that should be undertaken safely in all food businesses, the nature and combinations of foods prepared in bakeries and sushi manufacturers tend to make these practices more risky in these businesses.

The results of the survey demonstrate that where a business implemented a food safety program, a positive impact on the levels of safe food handling knowledge and practices of the businesses was realised. This was also demonstrated for businesses that provide food safety training to their staff but to a lesser degree.

In addition to the improvements made by businesses, the 2007 National Food Handling Survey has identified key food safety areas where efforts could be concentrated to further increase the safe food knowledge levels and actual practices.

Action that could be taken as a result of this study includes assessing and amending the requirements of the Food Safety Standards as necessary, increasing compliance activities and assisting businesses in seeking and obtaining food safety information and education.

FSANZ invites comment from food regulatory authorities as to whether improvements can be made to the Standards or whether there is a need to amend any explanations or examples of the clauses in the supporting document, Safe Food Australia.

Local councils and State/Territory Health Departments were identified by food businesses as the most common sources of food safety information, as well as industry associations. This indicates that these agencies are the most logical means of dispensing further food safety information to address areas of concern arising from this Survey.

The findings of this survey may also be useful to food regulatory authorities when developing strategies in relation to their food business education and compliance activities. The findings of the Survey could also be used to inform further targeted research and survey work.

**The findings of the 2007 National Food Handling Survey demonstrate that food businesses in Australia have made significant improvements in knowledge and practice in most of the key food safety areas since the introduction of the Food Safety Standards. It appears that the majority of businesses have taken action to seek out food safety information and to meet the requirements of the Food Safety Standards. It is considered that these improvements in knowledge and behaviour of safe food handling since the introduction of the Food Safety Standards are likely to have led to consequent improvements in overall food safety and public health.**

## References

- (Hall et al, 2005) – Hall, G; Kirk, M D; Becker, M; Gregory, J; Unicomb, L; Millard, G; Stafford, R; Lalor, K and the OzFoodNet Working Group – Estimating Foodborne Gastroenteritis. Australia. Emerging Infectious Diseases, Vol 11, No 8, p1257 – 1264, Aug 2005.
- (Mead et al, 1999) – Mead, P; Slutsker, L; Dietz, V; McCaig, L F, Bresee, J S; Shapiro, C; Griffin, P M and Tauxe, R V – Food-Related Illness and Death in the United States. Emerging Infectious Diseases, Vol 5, No 5, p607 – 625, Sept – Oct 1999.
- (Victorian Department of Human Services) - Rural and Regional Health and Aged Care Services Division, Victorian Government Department of Human Services – *Food Safety Program Template for Retail and Food Service Businesses Supplement B Sushi*, Edition 1.1, 2004.  
[http://www.health.vic.gov.au/foodsafety/bus/templates/service\\_retail.htm](http://www.health.vic.gov.au/foodsafety/bus/templates/service_retail.htm) (accessed August 2008).

## **Appendix 1: Results from the 2007 National Food Handling Survey for each of the key food safety areas**

This appendix summarises results of the 2007 National Food Handling Survey, bringing results from both the Telephone and Observational Survey components together under each of the key food safety areas. Detailed results are available in the *2007 National Food Handling Survey Final Report*.

### **Temperature control**

*Improvements between the 2001 and 2007 Telephone and Observational Surveys:*

- businesses that handle potentially hazardous food have a probe thermometer - 41% in 2001, 81% in 2007 (in the Telephone Survey there was an increase from 73% in 2001 to 90% in 2007)
- businesses know that chilled food should be stored below 5°C - 78% in 2001, 85% in 2007
- businesses know that hot food should held above 60°C - 77% in 2001, 85% in 2007
- businesses that prepare ready-to-eat table meals know that potentially hazardous ready-to-eat foods need to be kept refrigerated in order to remain safe for use the next day – In 2001, 79% knew that cooked rice 85% that beef curry needed to be kept refrigerated. In 2007, 95% knew that cooked rice and 94% knew that beef curry need to be kept refrigerated in order to remain safe for use the next day
- chilled food is stored at or below 5°C in the cool room/refrigerator – 91% in 2001 to 97% in 2007
- businesses know the 2 hour/4 hour rule for cooling cooked food, that is that cooked food must be cooled from 60°C to 21°C within two hours and from 21°C to 5°C within an additional four hours – In 2001, 42% of businesses that cook food and cool it for later use knew the 2 hour rule and 51% knew the 4 hour rule. In 2007, 72% of these businesses knew the 2 hour rule and 83% knew the 4 hour rule<sup>15</sup>
- businesses use a mechanism to control the temperature of hot potentially hazardous food during transportation (eg- insulated bag, plate warmer, container with heat pack, insulated vehicle) – 24% in 2001, 68% in 2007
- businesses check the temperature of delivered potentially hazardous food or have an alternative system for ensuring its safety – 56% in 2001, 80% in 2007

*Good results from the 2007 Observational Survey:*

- 94% of businesses had adequate storage space in the cool room/refrigerator
- 94% of businesses held their hot food at or above 60°C or had an alternative system to ensuring the safety of the hot food
- 94% of businesses that hold hot food had appropriate equipment capable of maintaining hot food at a temperature of at least 60°C
- 94% of businesses that hold hot food had adequate equipment (sufficient equipment or room within the equipment) for holding hot potentially hazardous food

---

<sup>15</sup> Note that in 2001 the question was asked as a true or false question.

- 94% of businesses that reheat food that has been cooked and then cool reheated the food rapidly for hot holding, or had an alternative system for ensuring the food is reheated safely
- 93% of businesses that had potentially hazardous food on display did so at the correct temperature or had an alternative systems for ensuring its safety
- 97% of businesses had adequate equipment to store, process and cook food safely

*Results from the Telephone and Observational Surveys that require improvement:*

There were two areas where safe temperature control knowledge or practices declined. They were:

- knowledge of the time that cooked potentially hazardous food that are meant to be served hot (eg – cooked chicken or casseroles) can be safely left at room temperature – 82% in 2001, 76% in 2007
- 89% of businesses that transport chilled potentially hazardous food in 2001 did so at or below 5°C or had an alternative system for ensuring it was transported safely. This decreased to 79% in 2007

There were aspects of safe temperature control knowledge and practices reported in 2007 where results indicate that further improvements are required. They were:

- checking the temperature of delivered potentially hazardous food:
  - 20% of businesses did not check the temperature of, or have an alternative system for, ensuring the food is received at a safe temperature
  - 7% of businesses that had chilled food delivered thought that temperature of chilled food never needed to be checked or only occasionally checked
  - the most commonly used method of checking the temperature of delivered chilled food was by touch (75%) and by looking at it (75%) followed by using a thermometer (53%)
  - 6% of businesses that had hot food delivered thought that the temperature of hot food never needed to be checked or only occasionally checked. 9% did not know how often the temperature of hot food should be checked
  - 9% of businesses thought that the temperature of delivered hot food should be checked by touch or by looking at it, 18% did not know how the temperature of hot delivered food should be checked. Only 76% of businesses knew that the temperature should be checked with a thermometer
- businesses that handle potentially hazardous food having a probe thermometer:
  - although there has been a significant increase in the number of businesses having a probe thermometer 19% still do not have such a device
- correct temperature for storing/holding chilled and hot food:
  - although there was an increase of knowledge in this area there was a significant proportion that did not know the correct temperature (15% did not know the correct temperature for storing chilled food and 15% did not know the correct temperature for holding hot food)
- mechanism for cooling cooked food:
  - 17% of businesses were unaware that large amounts of cooked food should be portioned and placed in small containers and put in a cool room or refrigerator for cooling
- transporting hot potentially hazardous food:

- although more businesses employed mechanisms to transport hot potentially hazardous food in 2007 (eg – using insulated bag, container or bag with heat pack or insulated vehicle), 32% transported the hot food out of temperature control
- 15% of businesses transporting hot potentially hazardous food did not transporting it at or above 60°C or have an alternative system for ensuring the hot food is transported safely

*Differences between knowledge and practice in the 2007 survey:*

It should also be noted that there were areas where there was a difference between the knowledge and actual practices of businesses:

- the method for checking the temperature of delivered chilled food - 74% *thought* that the temperature should be checked using a thermometer however the Observational Survey showed that only 53% of businesses actually used this method
- correct time and temperature for cooling cooked food – 72% of businesses that cool cooked food for later use knew the 2-hour rule and 83% knew the 4-hour rule, however in practice, more businesses (90%) cooled cooked food to the correct temperatures in the correct amount of time

*Analysis of the 2007 Telephone and Observational Surveys based on demographics*

Businesses that were identified as being more likely to have a probe thermometer were:

- high and medium risk businesses compared to low risk businesses
- large businesses compared to small businesses
- businesses with a food safety program compared to those without
- businesses where English was the main language spoken compared to those in which English was not the main language spoken
- Victorian businesses compared to other states and territories.

Businesses that were more likely to have a good understanding of the correct storage temperature of chilled foods and the method and frequency of checking the temperature of frozen and chilled foods were:

- high and medium risk businesses compared to low risk businesses
- large businesses compared to small businesses
- businesses who were well informed about current food safety regulations compared to those that felt they were not well informed
- businesses with a food safety program compared to those without
- businesses that provide staff training about food safety compared to those that do not.
- Victorian businesses compared to other states and territories.

Businesses that were more likely to be identified as having a system for checking the safety of delivered potentially hazardous food were:

- large businesses compared to small businesses
- businesses with a food safety program compared to those without
- businesses where English was the main language spoken compared to those in which English was not the main language spoken
- businesses that supplied potentially hazardous food to vulnerable groups compared to those who did not directly supply food to high risk groups.
- Victorian businesses compared to other states and territories.

Businesses that were more likely to check the temperature of delivered chilled food with a thermometer were:

- Victorian businesses compared to other states and territories
- large businesses compared to small businesses which were more likely to check the temperature by touch and looking at it
- businesses that supplied high risk groups compared to other businesses
- businesses with a food safety program compared to those without

Businesses in which English was not the main language spoken were less likely to have adequate equipment to store, process and cook food safely or to have adequate or appropriate equipment for storing hot potentially hazardous food. These businesses were also less likely to cool cooked food to the correct temperature in the correct time, or have an safe alternative cooling system, than businesses where English was the main language spoken.

There were only a limited number of circumstances where metropolitan businesses performed better than non-metropolitan businesses.

## **Protecting food from contamination**

*Improvements between the 2001 and 2007 Telephone and Observational surveys:*

- businesses that either use separate equipment for preparing and processing raw and ready-to-eat food or clean and sanitise the equipment between these uses – 91% of businesses in 2001, 98% in 2007

*Good results from the 2007 Telephone and Observational Surveys:*

- 99% had dry goods that appeared to be free from pests
- 96% had their dry goods protected from contamination
- 95% appropriately separated raw and ready-to-eat food in the cool room
- 96% that had food on display protected the food from contamination.
- 97% had staff wearing ‘clean’ outer clothing
- 94% had staff handle ready-to-eat food with utensils or other barriers (eg – gloves or paper)
- Of businesses that use disposable gloves when handling food 98% knew that the same disposable gloves should not be used for unpacking raw vegetables and to slice cold meat and 94% knew that the same gloves should not be worn to clean and wipe tables as well as unstacking the dishwasher. The Observational Survey identified that of businesses that use disposable gloves when handling food 93% had staff change their gloves when necessary.

*Results from the Telephone and Observational Surveys that require improvement:*

There were two areas where there was an increase in risky practices:

- no supervision of displayed ready-to-eat food intended for self-service – 15% in 2001, 41% in 2007
- businesses with food on display adding the food to the new batch for display the next day – 16% in 2001, 21% in 2007

There were poor levels of knowledge and practices in two areas of protecting food from contamination reported in the 2007 survey. They were:

- storage of food in the cool room/refrigerator:
  - 18% of businesses thought that raw vegetables can be safely stored above uncovered cooked food in a cool room
  - upon observation, 13% of businesses did not have all food protected from contamination in the cool room/refrigerator
- directly touching food:
  - 28% of businesses thought it was safe for food handlers to directly touch bread
  - 14% thought it was safe for food handlers to directly touch ham

### *Analysis of the 2007 Telephone and Observational Surveys based on demographics*

Businesses that were less likely to appropriately separate raw and ready-to-eat food in the cool room were:

- small businesses compared to large businesses
- businesses without a food safety program compared to those that do have one

Businesses where English was not the main language spoken were less likely to protect dry goods and food in the cool room from contamination.

## **Cleaning and sanitising**

### **Use of dishwashers**

The Telephone Survey showed a shift in the proportion of businesses<sup>16</sup> that:

- only use dishwasher – 12% in 2001, 17% in 2007
- use a dishwasher some of the time – 37% in 2001, 47% in 2007
- only hand-wash – 63% in 2001, 52% in 2007
- hand-wash some of the time – 88% in 2001, 82% in 2007

The Observational Survey showed that there was an increase in the use of:

- a commercial dishwasher – 30% in 2001, 65% in 2007
- a domestic dishwasher – 13% in 2001, 7% in 2007
- a hot water glass washer – 16% in 2001, 24% in 2007

Therefore, according to each survey the proportion of businesses using a dishwasher has increased. In 2001 the Telephone Survey identified that 59% of businesses used a dishwasher some of the time and the Observational Survey identified 43%. In 2007 this had increased to 64% and 72%, respectively.

### **Sanitising utensils and equipment**

The 2007 Telephone Survey showed that of the businesses that used a dishwasher, 60% knew that the temperature of the final rise in their dishwasher should be over 71°C<sup>17</sup> while 35%

---

<sup>16</sup> In the Telephone Survey questions about cleaning and sanitising were asked of businesses that prepared ready-to-eat table meals. In the Observational Survey the questions were asked of businesses that use reusable eating and drinking utensils.

either thought it should be a lower temperature or admitted they did not know. A lower proportion (27%) of the businesses that hand-washed knew that the temperature of hot water that would kill microorganisms is 71°C or higher. The questions about the temperature required to kill microorganisms when washing containers and utensils did not take into account the amount of time the utensils were exposed to water as this would have resulted in a complex mix of response.<sup>18</sup>

27% of all businesses incorrectly thought that detergents kill microorganisms.

Businesses that prepare ready-to-eat table meals were also asked how often a chemical sanitiser should be used after washing cups, plates and eating utensils. The results were as follows:

- chemical sanitiser should *always* be used – 76%
- chemical sanitiser should *sometimes* be used – 9%
- chemical sanitiser should *never* be used – 8%
- did not know how often a chemical sanitiser should be used – 7%

The Observational Survey revealed that more businesses used chemical sanitisers in 2007 (82%) compared to 2001 (76%). Of the 18% that did not use chemical sanitisers 55% manually sanitised using hot water. This equates to 91% of businesses sanitising equipment either with chemical sanitisers or hot water.

In 2007, only 8% of the businesses that sanitised using hot water used water that was over 77°C therefore making the sanitising likely to be ineffective. For this reason it is encouraging that more businesses are using chemical sanitisers, and less using hot water, to sanitise equipment since the introduction of the Food Safety Standards.

### **Commercial dishwasher**

Although the questions were presented differently between the 2001 and 2007 Observational Surveys, a lower proportion of businesses that used commercial dishwashers were identified as having the ‘correct’ sanitising temperature (77°C or above) – 83% in 2001, 62% in 2007<sup>19</sup>. Of the businesses with a sanitising temperature under 77°C, the majority of these cycles were only up to 2 minutes (57%) and another 15% were between 2 and 4 minutes in length.

### **Domestic dishwasher**

In the 2007 survey the sanitising temperature could only be identified as being over 77°C in 17% of businesses that used a domestic dishwasher. 36% were identified as being under 77°C while the temperature could not be identified in 47% of the businesses.

Of those under 77°C, 38% had a sanitising cycle only up to 3 minutes while 54% were over 10 minutes.

---

<sup>17</sup> The question was unprompted, however the scale used by the interviewers to record the answer given was different to that used in the Observational Survey. Therefore, for the Telephone Survey the ‘correct’ temperature is assumed to be 71°C or higher. In the Observational Survey the ‘correct’ temperature is 77°C or higher.

<sup>18</sup> It is noted in Sections 4& 5 of this Report that this is an area that could be explored further in any future targeted surveys.

<sup>19</sup> Note the questions was presented differently in the 2001 and 2007 surveys therefore this may have had impact on the results

## Hot water glass washer

Although the questions were presented differently between the 2001 and 2007 Observational Surveys, a lower proportion of businesses that used hot water glass washers were identified as having the ‘correct’ sanitising temperature (77°C or above) – 68% in 2001, 39% in 2007<sup>20</sup>.

Of the businesses with a sanitising temperature of their hot water glass washers under 77°C<sup>21</sup>, the length of the sanitising cycle was identified as being up to 2 minutes in 68% of businesses.

### *Analysis of the 2007 Telephone and Observational Surveys based on demographics*

Businesses that were more likely to use a commercial dishwasher were:

- large businesses compared to small businesses
- businesses with a food safety program compared to those without
- businesses in which English is the main language spoken compared to those where it is not

Chemical sanitisers were more likely to be used in:

- businesses with a food safety program compared to those without
- businesses in which English is the main language spoken compared to those where it is not
- large businesses compared to small businesses

## Personal hygiene and staff illness

### *Improvements between the 2001 and 2007 Observational Surveys:*

- businesses with sufficient hand-washing facilities – 83% in 2001, 93% in 2007
- businesses with hand-washing facilities accessible to employees – 89% in 2001, 93% in 2007
- businesses with warm running water in hand-washing facilities – 85% in 2001, 94% in 2007
- businesses with single use towels supplied at hand-washing facilities – 79% in 2001, 85% in 2007
- businesses had staff cover wounds with a waterproof dressing – 94% in 2001, 97% in 2007

### *Good results from the 2007 Telephone and Observational Surveys:*

- 89% of businesses had a policy for relating to staff who are unwell
- when asked which food preparation tasks an employee with diarrhoea should avoid businesses responded (unprompted):
  - the employee should not be at work at all (53%)
  - the employee should not have anything to do with food or food implements (49%)

---

<sup>20</sup> Note the questions were presented differently in the 2001 and 2007 surveys therefore this may have had impact on the results. In 2007, the proportion of businesses for which an answer was not recorded was 40% which is indicative that the EHO's were not able to measure, and therefore observe, the actual temperature. Therefore, it could also mean that for those businesses where an answer was recorded this answer may have been derived from asking a staff member and therefore may not reflect the actual temperature of the sanitising cycle.

<sup>21</sup> This was a small base therefore caution should be taken with interpreting this result.

- the employee should not be in food preparation areas but can be at the business (2%)
- the employee should not serve food (1%)
- the employee should not handle unpackaged food directly (2%).

*Results from the Telephone and Observational Surveys that require improvement:*

Although questions were presented differently between the two surveys, there appeared to be a concerning decline in the proportion of businesses that had staff wash their hands when necessary – 91% in 2001, 80% in 2007.

Although there were several improvements in the hand-washing facilities made available to staff, other results indicated that staff were not using the facilities as often as they should be:

- 12% of staff did not wash their hands in the designated hand washing facilities, for example they used the equipment washing sink. However, this had decreased from 20% in 2001
- 13% of staff did not wash and dry their hands correctly
- the hand-washing facilities in 16% of businesses did not show evidence of recent use.
- 7% of businesses did not have soap or hand cleanser supplied at the hand-washing facilities

*Analysis of the 2007 Telephone and Observational Surveys based on demographics*

Accessible hand-washing facilities were less likely to be observed:

- among businesses that did not have a food safety program compared to those that did
- in businesses where English was not the main language spoken compared to those where English was the main language

Warm running water in the hand-washing facilities was less likely to be observed in metropolitan businesses compared to non-metropolitan businesses.

Generally, businesses in which English was not the main language spoken were more likely to be observed with insufficient hand-washing facilities and poorer staff hand washing practices than businesses in which English was the main language spoken. Specifically, these businesses were less likely to:

- have soap or hand cleanser in hand-washing facilities
- have single use towels in hand-washing facilities
- have staff wash their hands in the appropriate designated hand-washing facilities
- have staff wash hands when necessary, particularly between working with raw and ready-to-eat food or after touching their hair, scalp or body opening
- have staff wash and dry their hands correctly ie – using soap and warm running water and using a single use towel
- have hand-washing facilities that did not show evidence of recent use

## **General assessment of premises**

*Improvements between the 2001 and 2007 Observational Survey:*

- business had adequate lighting – 96% in 2001, 99% in 2007
- business had adequate ventilation – 93% in 2001, 97% in 2007
- business appeared to be free from pests – 90% in 2001, 97% in 2007

- business contracts a pest control company or has a pest control program – 76% in 2001, 83% in 2007

*Good results from the 2007 Observational Survey:*

- 92% of businesses were considered well maintained
- 97% of businesses store chemicals correctly

*Results from the Observational Survey that require improvement:*

There were no declines in the general assessment of business premises between 2001 and 2007. However, there was considered that there was room for improvement in the cleanliness of 11% of businesses. The biggest problem areas were the preparation and cooking areas (8%), followed by the dry good storage area (5%) and cool room (3%).

*Analysis of the 2007 Observational Survey based on demographics*

Businesses where English was not the main language spoken were less likely to be considered clean and well maintained compared to those businesses where English was the main language spoken.

Businesses that were less likely to contract a pest control company or have a pest control program were:

- non-metropolitan businesses compared to metropolitan businesses
- small businesses compared to large businesses
- businesses in which English was not the main language spoken

## **Staff food safety training**

In the 2001 Telephone Survey, 74% of businesses reported provided training to staff about food safety. In 2007 this had increased to 89% of businesses.

The forms of staff training provided in 2007 included:

- informal/on the job training (57%)
- external staff training programs (39%)
- induction programs at the work place (27%)
- workplace training provided by a Food Safety Manager or Officer (22%)
- the circulation of brochures, pamphlets and posters (11%)
- the circulation food safety regulation documents (5%)
- engaging on-line training programs (1%)

## **Food recall plans**

Although there was been a significant increase in manufacturers and wholesalers observed as having a food recall plan (27% in 2001, 50% in 2007), 50% of businesses did not have one in place in 2007. No assessment of the adequacy of the plan was made.

## **Food Safety Programs**

When asked in the 2007 Telephone Survey:

- 81% of businesses said they had heard of Food Safety Programs, Food Safety Plans or HACCP (78%, excluding Victorian businesses)
- 66% said their business had a Food Safety Program (60%, excluding Victorian businesses)

The data from the 2007 Observational Survey indicated that:

- upon observation, 39% of businesses had a Food Safety Program (24%, excluding Victorian businesses).
- businesses that were more likely to have a Food Safety Program included:
  - high risk businesses compared to medium businesses
  - large compared to small businesses
  - businesses that supply food to high risk groups compared to those that do not
  - businesses in which English was the main language spoken compared to those in which English was not the main language
  - caterers compared to non-caterers

## **Sources of food safety information**

In the 2007 Telephone Survey, 85% of businesses said they found it easy to locate food safety information compared to 68% in 2001.

Sources of food safety information stated as being used in 2007 included:

- the local council/Environmental Health Officer (EHO) (51%, an increase from 49% in 2001)
- state/territory government health department (33%, a decrease from 42% in 2001)
- industry associations (20%, a decrease from 27% in 2001)
- the internet (17%, an increase from 0% in 2001)
- internal/external food safety auditor/quality assurance person (13%, an increase from 0% in 2001)
- in-house company resources (12%, an increase from 7% in 2001)
- FSANZ (11%, an increase from 2% in 2001)

## **Awareness of and changes in practices as a result of the introduction of the Food Safety Standards**

In the 2007 Telephone Survey:

- a higher proportion of businesses (86%) reported they felt either 'informed', 'well informed' or 'very well informed' about food safety regulation than in 2001 (81%).
- 14% felt they lacked knowledge about the food safety regulations.
- 38% were not aware that new Food Safety Standards were brought in by the government between 2001 and 2003.
- businesses that were more likely to feel 'well informed' or 'very well informed' about food safety regulations included:
  - high risk businesses compared to medium and low risk businesses
  - large compared to small businesses

- businesses that provide staff training about food safety compared to those not providing training
- businesses that had a food safety program compared to those that did not

High and medium risk businesses were more likely to be aware that the government brought in new the Food Safety Standards between 2001 and 2003.

Of the businesses that indicated in the 2007 Telephone Survey that they were aware of the Food Safety Standards:

- 55% said they had changed their practices as a result of their introduction. Businesses that were more likely to have changed their practices included:
  - high risk businesses compared to medium and low risk businesses
  - large businesses compared to small businesses
  - businesses with a food safety program compared to those without a food safety program
  - businesses supplying food to high risk groups compared to those that did not
- The most common changes as a result of the introduction of the Food Safety Standards reported in 2007 included:
  - educational requirements for the staff (83%)
  - the way food is handled (75%)
  - equipment and surface washing practices (73%)
  - the purchase of new equipment (65%)
  - the way food is stored (65%)
  - their hand-washing practices (62%)
  - the way food is displayed (44%)
  - the way food is transported (38%)
- of the 33%<sup>22</sup> of businesses in 2007 that claimed they did not change any of their practices as a result of the introduction of the new Food Safety Standards, the main reasons for not making any changes were:
  - the business was already compliant with the standards (80%)
  - the business began the business after the Standards had been introduced (11%)
  - the new standards were not applicable to their business (4%)
  - the new standards were difficult to implement (1%)

---

<sup>22</sup> The remaining 11% of those interviewed were unsure whether their business had changed its practices as a result of the introduction of the Food Safety Standards.

## **Bakeries**

### *Temperature control*

#### *Good results from the 2007 Telephone and Observational Surveys:*

- almost all bakeries (98%) indicated that they had a probe thermometer, compared to 87% of all food businesses. On inspection, 84% of bakeries that handled potentially hazardous food had a probe thermometer, compared with 81% of all businesses that handled potentially hazardous food
- 90% bakeries who stored chilled food knew that chilled food should be stored at or below 5°C, compared to 85% of all businesses that stored chilled food
- 89% bakeries who hot-held cooked food knew that the correct holding temperature for cooked food was 60°C or more, compared to 85% of all businesses that hot-held hot food
- almost all (98%) bakeries that stored chilled food did so at 5°C or below, similar to all businesses (97%)
- almost all (99%) bakeries that held hot food did so at 60°C or above or had an alternative system for ensuring that hot food was safely stored, compared to 94% all businesses
- most bakeries (94%) that displayed potentially hazardous food held it at the correct temperature or had alternative system for ensuring its safety, similar to 94% of all businesses

#### *Results from the Telephone and Observational Surveys that require improvement:*

- knowledge that the temperature of delivered chilled food should be checked using a thermometer or temperature probe – only 71% correctly answered this question, a better result than all businesses (53%)
- knowledge that cooked potentially hazardous food (cooked chicken and casseroles) intended for serving hot could be left at room temperature for up to two to four hours – 27% did not know, similar to 24% of all businesses
- the practice of checking that delivered potentially hazardous food is received at a safe temperature – 23% did not check or have an alternative system in place to ensure food safety, similar to 20% of all businesses

### *Protecting food from contamination*

#### *Good results from the 2007 Telephone and Observational Surveys:*

- appropriate use of disposable gloves – 90% of bakeries that have staff used disposable gloves knew that the same gloves should not be used for unpacking raw vegetables and slicing cold meat or wiping down tables and unpacking a dishwasher. Staff at 96% of bakeries where gloves were worn changed their gloves when necessary
- use of separate equipment for preparing raw and ready-to-eat food or cleaning and sanitising the equipment between uses – 99% of bakeries
- staff use of utensils or other barriers (eg – gloves) when handling ready-to-eat food – 93% of bakeries

#### *Results from the Telephone and Observational Surveys that require improvement:*

- the safe storage of raw and ready-to-eat food in the refrigerator or cool room – 13% thought that raw vegetables can be safely stored above uncovered cooked food in the cool room. On inspection, 19% did not protect all food from contamination in the cool room or refrigerator
- the storage of dry goods – 8% did not protect dry goods from contamination;
- directly touching food – 20% thought it was safe for food handlers to directly touch bread while 8% thought they could safely touch ham
- the supervision of displayed ready-to-eat food intended for self-service – 63% of bakeries with self-service ready-to-eat food did not have it supervised by staff. This was also a big problem area for all food businesses (41%)

### *Cleaning and sanitation*

The findings of the 2007 Telephone Survey showed that:

- 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%)

The 2007 Observational Survey revealed that:

- fewer bakeries used reusable eating and drinking utensils compared to all businesses nationally (37% and 56% respectively). 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)

### *Results from the Telephone and Observational Surveys that require improvement:*

- 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
- on observation, 17% of the 71% of bakeries that used reusable piping bags did not adequately clean and sanitise the piping bag between uses
- there was evidence of cross contamination of foods occurring in 4% of all bakeries. 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

### *Personal hygiene and staff illness*

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)
- had staff that washed their hands in the designated hand washing facility (81% and 88% respectively)

Bakeries were well informed about the responsibilities of staff that are unwell with a potential foodborne illness. When asked (without prompting) what food preparation tasks an employee

with diarrhoea should avoid only 3% of bakeries did not know. 57% believed staff with diarrhoea should not be at work at all and 47% thought they should avoid anything to do with food or food implements.

88% of bakeries had a policy relating to staff who were unwell.

### *Food Safety Programs*

In the 2007 Telephone Survey 85% of bakeries said they 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). However, on observation 44% of bakeries nationally had a written Food Safety Program (93% of Victorian bakeries and 26% of non-Victorian bakeries). These results are similar to those for all food businesses.

### *Use of piping bags in bakeries*

Nine in ten (87%) bakeries used piping bags in the preparation of food:

- 48% of bakeries only used reusable piping bags
- 15% only used disposable piping bags
- 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).

### *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:

- 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
- under one in five (17%) bakeries used both shell eggs and egg products as part of their food preparation
- egg and egg products were mainly sourced from:
  - a wholesaler or supplier (74%)
  - Farms (17%), supermarkets (15%)
  - local shops (7%)
  - Other sources (5%)
- bakeries that only used shell eggs mainly sourced from:
  - A wholesaler or supplier (71%)
  - Supermarkets (18%)
  - Farms (16%)
  - Local shops (8%)
- bakeries that only used egg products mainly sourced from:
  - A wholesaler or supplier (79%)
  - Farm (14%)
  - 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 19% of bakeries that used shell eggs.

## **Sushi makers**

### *Temperature control*

#### *Good results from the 2007 Telephone and Observational Surveys*

The areas where sushi makers had good knowledge or practices were:

- knowledge that cooked potentially hazardous food intended for serving hot could be left at room temperature for up to two to four hours - 88% of sushi makers 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%)
- hot food was held at 60°C or above – 92% of sushi makers that held hot food did so at the correct temperature (87%) or had an alternative system for ensuring that hot food was safely stored (5%)
- chilled food was stored at 5°C or below - all (100%) of sushi makers that stored chilled food did so at the correct temperature (94%) or had an alternative system in place to ensure it was stored safely (6%)
- display of potentially hazardous food within the correct temperature range ( $\leq 5^{\circ}\text{C}$ ) – although less sushi makers displayed their potentially hazardous food at the correct temperature compared to the national average (75% and 89%, respectively), an additional 15% had an alternative system for ensuring its safety (therefore the total was 90%, similar to 93% for all businesses). This general question from the 2007 Observational Survey did not require details or the alternative system to be provided, however it is possible to safely display sushi and sushi rice up to 15°C if the pH of the rice is  $< 4.8$ . More detailed questions on the acidification of rice as an alternative to storing  $\leq 5^{\circ}\text{C}$  were asked in the additional questions for sushi makers

#### *Results from the Telephone and Observational Surveys that require improvement:*

- business had a temperature probe – 92% of sushi makers indicated that they had a probe thermometer, similar to 87% of all businesses. On inspection, 79% of sushi makers that handled potentially hazardous food had a probe thermometer, compared with 81% of all businesses that handle potentially hazardous food
- knowledge that the temperature of delivered chilled food should be checked using a thermometer or temperature probe – only 76% correctly answered this question, a better result than all businesses (53%)
- checking that delivered potentially hazardous food is received at a safe temperature – 21% of sushi makers did not check the temperature or have an alternative system for ensuring the safety of the delivered food, similar to 20% of all businesses
- knowledge that chilled food should be stored at or below 5°C – 12% of sushi makers that store chilled food did not know the correct temperature of storage, similar to 15% of all businesses
- knowledge that hot food should be stored at 60°C or above – 19% of sushi makers that hot-held cooked food did not know the correct temperature of storing the hot food, this was a far greater proportion than all businesses (4%)

### ***Temperature control of rice used in sushi***

- 48% of the sushi businesses prepared the rice in advance and stored it for later use. More specifically:
  - 28% of sushi businesses prepared rice in advance and stored it for later use at 5°C or less
  - 20% of sushi businesses prepared rice in advance and did not store it at 5°C or less. However, all of these businesses acidified the rice
- Of the 48% of sushi businesses that prepared rice in advance and stored 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
  - 10% did not know how long they kept the rice before using it

### ***Temperature control for making and displaying sushi***

- 78% sushi businesses prepared sushi in advance of serving or sale. More specifically:
  - 56% of sushi businesses prepared the sushi in advance and stored the sushi in refrigeration at 5°C or less
  - 22% of sushi businesses prepared the sushi in advance and did not store it at 5°C or less. However, all of these businesses acidified the rice
- 83% sushi businesses presented the sushi for sale, broken down as follows:
  - 58% of sushi makers presented the sushi for sale in refrigerated conditions at 5°C or less
  - 13% of sushi makers had a system to determine the amount of time the sushi had been on display at more than 5°C
  - 13% of sushi makers did not have a system to determine the amount of time the sushi had been on display at more than 5°C

### ***Temperature and pH controlled storage of rice and sushi***

- Overall, 56% of sushi makers stored rice and sushi at 5°C or less and 44% stored rice or sushi out of refrigerated conditions of 5°C or less. The breakdown of the 44% that stored rice or sushi out of temperature controlled conditions was:
  - 44% (that is all who stored rice or sushi out of temperature control) added vinegar to the rice. Of this 44% who added vinegar, 75% correctly added at least 110mL of vinegar to every 1kg of cooked rice
  - 6% of all sushi makers measured the pH of the rice and the pH of the rice was  $\leq 4.8$  for all of these

### ***Protecting food from contamination***

*Good results from the 2007 Telephone and Observational Surveys:*

- appropriate use of disposable gloves – 97% of sushi makers that have staff used disposable gloves knew that the same gloves should not be used for unpacking raw vegetables and slicing cold meat. Staff at 94% of sushi makers where gloves were worn changed their gloves when necessary
- use of separate equipment for preparing raw and ready-to-eat food or cleaning and sanitising the equipment between uses – 96% of sushi makers that handled raw and ready-to-eat food
- staff use of utensils or other barriers (eg – gloves) when handling ready-to-eat food – 93% of sushi makers. In the 2007 Telephone Survey 87% of sushi businesses said their employees wore disposable gloves when handling food

*Results from the Telephone and Observational Surveys that require improvement:*

- appropriate use of disposable gloves – 13% of sushi makers were not aware that the same gloves should not be used to clean and wipe tables as well as unstack a dishwasher
- the safe storage of raw and ready-to-eat food in the refrigerator or cool room – 21% thought that raw vegetables can be safely stored above uncovered cooked food in the cool room
- directly touching food – 28% thought it was safe for food handlers to directly touch bread while 11% thought they could safely touch ham

*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%).

*Cleaning and sanitation*

The findings of the 2007 Telephone and Observational Surveys showed that:

- a lower proportion of sushi makers hand washed containers and utensils (70%) compared to other food businesses (82%)
- the use of dishwashers was more common among sushi makers (66%) compared to other types of food businesses (47%)
- fewer sushi makers used reusable eating and drinking utensils compared to all businesses nationally (40% and 56% respectively) and of these:
  - 76% used a commercial dishwasher (compared to 64% of all food businesses)
  - none used a domestic dishwasher (compared to 13% of all food businesses)
- makers of sushi with a dishwasher were more likely to believe that the final rinse of the dishwasher should be over 80°C (67%) compared to other food businesses (47%)
- makers of sushi who hand washed containers and utensils 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%) – 18% of sushi makers indicated it should be between 71° and 80°C and 19% thought it should be over 80°C. Additionally, makers of sushi were more likely to indicate the temperature of hot water should be above 71°C to kill bacteria (37%) compared to other food businesses (26%)

### *Personal hygiene and staff illness*

Sushi businesses were well informed about the responsibilities of staff that are unwell with a potential foodborne illness. When asked (without prompting) what food preparation tasks an employee with diarrhoea should avoid only 4% of sushi makers did not know, although this was higher than other food businesses (1%). 67% believed staff with diarrhoea should not be at work at all and 31% thought they should avoid anything to do with food or food implements.

85% of sushi makers had a policy relating to staff who were unwell.

### *Food Safety Programs*

In the 2007 Telephone Survey 79% of sushi makers said they 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). However, on observation 42% of sushi makers nationally had a written Food Safety Program (100% of Victorian sushi makers and 17% of non-Victorian sushi makers). These results are similar to those for all food businesses.

### *General assessment of the premises of sushi makers*

The 2007 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
- 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

## **Appendix 2: Business Demographics**

This appendix provides a brief description of each business demographic or question by which the 2007 Survey results were analysed. Due to the random sampling methodology used for both the Telephone and Observational surveys, the demographic breakdown of businesses varies slightly between the 2001 Benchmark and 2007 Surveys. A detailed description of businesses surveyed in the 2007 Survey, and comparisons with the Benchmark Survey, are provided in Appendix E of the 2007 Survey Final Report.

### ***Business location:***

#### **- by State/Territory**

Individual sample targets were set for each State and Territory so as to provide a reliable sample base for analysis by jurisdiction. The targets were set to reflect the relative size of each State and Territory.

The Final Report provides details of significant differences in results for each State and Territory. These results have not been analysed in this Interpretive Summary. Individual State and Territories can analyse the results for their jurisdiction taking into account their circumstances eg – the level of regulation required in that jurisdiction (for example the requirement that all Victorian businesses (except low risk businesses) have a food safety program, or the introduction of a requirement for businesses in Victoria and Queensland to have a Food Safety Supervisor), where they are focusing their compliance activities, what education they have been focusing on, the type and level of support they are providing their Environmental Health Officers (EHOs) and auditors.

#### **- by regional location**

Individual targets were not set for metropolitan and non-metropolitan businesses. However, the result of the random sampling approach was an equal split of businesses in the Telephone Survey for both years. The 2001 Observational Survey also had an equal proportion while in 2007 there were a lower proportion of non-metropolitan businesses surveyed.

### ***Business size:***

Business size was determined using the Priority Classification System which defines a small business as: *a business that employs less than 50 people in the manufacturing sector or which employs less than 10 people in the food services sector.*

### ***Business risk classification:***

Section 3 of the Telephone Survey, and Sections 3 and 4 of the Observational Survey<sup>23</sup>, 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<sup>24</sup>.

---

<sup>23</sup> Refer to Appendices A and B of the Final Report for the survey questions.

<sup>24</sup> The Priority Classification System is a scoring system that classifies food businesses into risk categories based on the type of food, activity or 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](http://www.foodstandards.gov.au/newsroom/publications/thepriorityclassific352.cfm).

***Businesses that were manufacturers:***

Businesses were identified as being a manufacturer if they prepared and packaged food on-site for later distribution and sale, for example a factory.

***Businesses where English was the main language spoken:***

The Observational Survey asked the Environmental Health Officer to note whether English was the main language spoken at the business. The Officer did not have to determine what the main language was in the case where it was not English. Information on the main language spoken at the business was not sought in the Telephone Survey, however the Final Report noted that 2% businesses contacted did not complete a survey due to language difficulties.

***Businesses that supplied food to vulnerable groups:***

These were business from the Telephone and Observational Surveys that indicated they directly supplied or manufacture food for:

- Hospitals, or other sites where sick or frail people reside;
- Nursing homes, hostels or other organisations serving elderly people; or
- Child care centres or other organisations serving children under 5 years old.

***Caterers:***

These were business from the Telephone and Observational Surveys that indicated they operate an on-site catering service or are involved in off-site catering<sup>25</sup>.

***Answers to three questions on business practices were also used to analyse results.***

***Business with a food safety program:***

Both the Telephone and Observational Survey identified whether a business had a written food safety program, food safety plan or HACCP program.

***Business that indicated they felt well informed about current food safety regulations:***

The Telephone Survey provided information on how informed each business felt about current food safety regulations.

***Businesses that provided food safety training to their staff:***

The Telephone Survey determined whether each business provided training about food safety to its staff.

---

<sup>25</sup> The definitions of on-site and off-site catering were adapted from the proposed Catering Standard 3.3.2 – Food Safety Programs for Catering Operations (FSANZ Proposal P290). For the purposes of this survey:

**On-site catering** was defined as *preparing food for 50 or more people at the premises such as prepared meals for a function*. A restaurant serving a-la-cart meals to customers we not included; and

**Off-site catering** was defined as *preparing food at one location to serve it at a different location such as a function or other event*. This definition did not include home-delivered meals such as pizza.