



NSW Food Authority

safer food, clearer choices

Food Safety Baseline Survey of NSW hospitals and aged care businesses

October 2004

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About this document

This document has been prepared to report the NSW findings of the 2003 food safety baseline survey of NSW hospitals and aged care businesses.

This project was conducted by the NSW Food Authority (the then Food Branch of the NSW Department of Health). The findings were first published on the NSW Food Authority's (Authority) website in 2004. This report presents the data in a reformatted form.

If you have any questions about this document, please contact the NSW Food Authority Consumer and Industry Helpline on 1300 552 406 or contact@foodauthority.nsw.gov.au.

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Executive summary

In 2003, a national study¹ identified food service to vulnerable persons as high risk. Processes were then initiated to develop a national standard requiring food safety programs (FSPs) for food service to vulnerable persons. These businesses include hospitals, aged care facilities and delivered meal organisations

At that time, the NSW Food Authority (the then Food Branch of the NSW Health Department) conducted an onsite study of 91 hospital and aged care businesses in NSW.

The survey aimed to:

- provide a snapshot of the hospital and aged care sector in NSW, and
- inform the NSW Food Authority's (the Authority) implementation processes ahead of introducing any proposed national standard.

Using a standardised survey tool, the Authority's food safety officers and local government Environmental Health Officers (EHOs) documented processing details for each business. Businesses were also assessed on their current status of food safety management and preparedness to implement food safety programs (FSPs).

Additionally, food safety officers collected more than three hundred food samples (n=341) from selected businesses. Samples were analysed for microbiological pathogens and indicator bacteria and then rated 'good', 'satisfactory' and 'marginal'². Food categories analysed were hot meat and vegetables, desserts, salads and sandwiches.

The survey findings were used to prepare a profile of the vulnerable persons industry in NSW.

In summary, the study revealed that of the businesses surveyed:

- nine out of ten were classified as small or medium in size,
- three-quarters prepare cook-fresh food,
- three-quarters had voluntarily implemented a FSP,
- more than half of the voluntary programs were judged as complying with Standard 3.2.1 *Food Safety Programs* of the Food Standards Code³ (Standard 3.2.1),
- small businesses were least likely to have implemented voluntary FSPs but when they had, their FSPs were judged as complying with Standard 3.2.1,
- no bacterial pathogens were identified in any food sampled however indicator organisms were identified for some food categories,
- salads and sandwiches were the category with the least number of samples ranked as 'good',
- cooked-chilled desserts and pureed hot food also contained samples ranked 'satisfactory' and 'marginal', and
- all non-puree hot dishes received a 'good' rating.

The survey identified that there was a need for industry assistance in the form of clear guidelines and a model FSP for small vulnerable persons businesses that process cook-fresh food.

The survey further identified areas and processes that should be addressed in industry assistance materials. These include:

- post-cook cross contamination (puree, slicing and storage of cooked food),

- process controls for serving cooked desserts, salads and sandwiches and puree food,
- heating, plating and serving meals, and
- serving high risk foods.

These findings prompted more in-depth research in the vulnerable persons sector. As part of the Trial Audit Project (2004), volunteer vulnerable persons businesses received formal food safety audits and advisory ratings.

1. Hospitals and aged care facilities part of the evaluation survey

1.1 Serving food to vulnerable persons is identified as high risk

In 2003, businesses involved in food service to vulnerable persons, at a national level, were identified as being high risk. At this time, Food Standards Australia New Zealand (FSANZ) proposed a national food safety standard mandating Standard 3.2.1³ in hospital and aged care facilitiesⁱ. NSW would then implement any new national requirements via the introduction of a Food Safety Scheme under the NSW Food Regulation 2004.

1.2 Food safety performance benchmarked

In 2003, the Authority undertook a baseline evaluation of NSW hospitals and aged care businesses. This involved gathering data on food safety performance, commitment to food safety and microbiological quality of food served in vulnerable persons businesses. The survey provided:

- a snapshot of the hospital and aged care sector in NSW,
- a preliminary assessment of the level of preparedness for the implementation of mandatory FSPs,
- information to develop food safety guidelines and a model food safety program, and
- data to establish a benchmark of the microbiological food safety and hygiene prior to implementation of mandatory FSPs.

ⁱ Standard 3.3.1 *Food Safety Programs for Food Service to Vulnerable Persons* commenced in October 2008⁴

2. Baseline food safety information collected from 91 businesses

2.1 Representative samples were randomly selected from within each Public Health Unit

The study aimed to collect onsite data from 100 vulnerable persons businesses. This represented about ten percent of the total number of businesses identified at the time of sampling.

A combination of sources was used to generate the list of vulnerable persons businesses for NSW. This included:

- NSW Notification and Food Safety Information System (NAFSIS),
- Brylar's *Australia on Disc Business* (2001), and
- NSW Health Private Health Care Branch private hospital licence holders.

Based on postcode, businesses were then assigned to a Public Health Unit (PHU) list. A representative number of businesses were randomly sampled from each PHU list (based on the total amount of vulnerable persons businesses). However, for each PHU, equal numbers of hospitals and aged care facilities were sampled.

The report includes data collected from surveys from all PHUs in NSW with the exception of the Illawarra Division of Population Health and Planning.

2.2 More than 300 food samples collected

The Authority's food safety officers and local government EHOs collected 341 microbiological samples from 91 businesses. Samples were collected from eight food categories:

- sandwiches
- salad
- fruit salad
- cooked dessert
- vegetable puree
- vegetables
- meat puree
- meat

A maximum of four samples (100g per sample) were collected from each vulnerable persons business. Additional meals for sampling were placed on the meal trolley and temperatures were recorded at the time of plating and point delivery. Sample type, production date, 'use-by' date, and a description of the process (eg short-term cook-chill from Central Production Unit (CPU)) was recorded on the sample information sheet.

2.3 Food safety processes and microbiological safety and hygiene benchmarked

The Authority's food safety officers and local government EHOs completed a standardised food safety questionnaire that documented production and food safety processes undertaken by the selected businesses. Food samples were collected and analysed for a range of pathogens and hygiene indicator organisms.

Microbiological samples were assessed against a modified version of the Food Standards Australia New Zealand *Guidelines for the microbiological examination of ready-to-eat foods*² (Appendix 1).

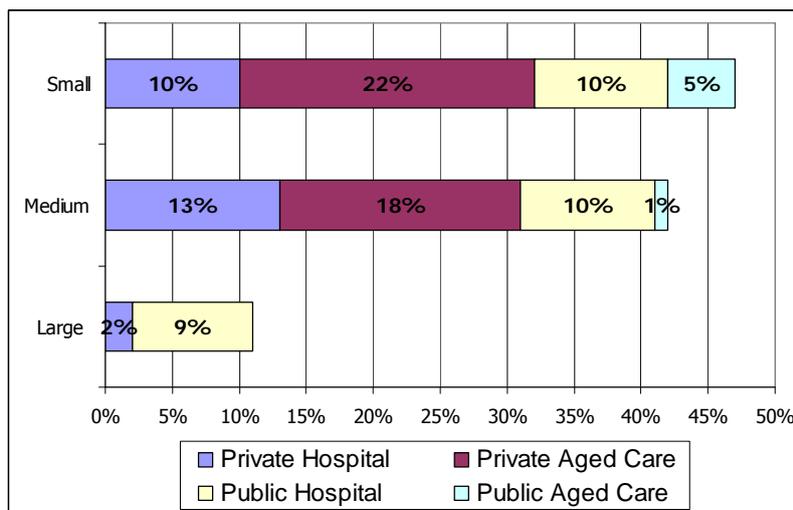
3. Results

3.1 Businesses most likely to be small or medium-sized, a private aged care provider and prepare 'cook-fresh' food

Ninety percent of businesses surveyed were small or medium-sizedⁱⁱ

The majority of vulnerable person businesses surveyed were classified as small or medium-sized businesses. Private aged care (40%) was the largest sector surveyed and public aged care (6%) was the smallest sector. The study also found that the limited number of large businesses were all hospitals (n=9). See Figure 1.

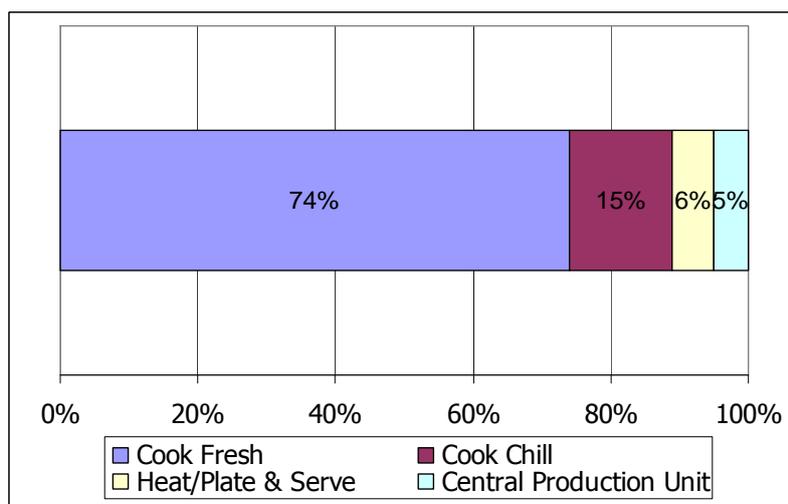
Figure 1: Facility type and business size



Most businesses prepare 'cook-fresh' food

The study revealed that most businesses prepare 'cook-fresh' food (74%) followed by 'cook-chill' (15%) and heat/plate/serve food (6%). The least number of businesses that process and transport food are part of a central production unit (CPU) (5%). See Figure 2.

Figure 2: Food systems most commonly used by vulnerable persons businesses



ⁱⁱ Small= fewer than 10 food handlers, Medium= 10-50, Large= more than 50.

3.2 Three-quarters of businesses surveyed had voluntarily implemented a FSP

Over three-quarters of the vulnerable persons businesses surveyed (78%) indicated they had voluntarily implemented a FSP. Of the businesses with a voluntary FSP:

- slightly less than half (44%) stated that their FSP was a HACCP-based program,
- fifty-eight percent (58%) were judged by the Authority's food safety officers as not complying with Standard 3.2.1³,
- fifteen percent of the voluntary FSPs were externally audited by a commercial auditor, and
- Approximately one in ten businesses (9%) stated that they undertook FSP verification activities such as microbiological product testing.

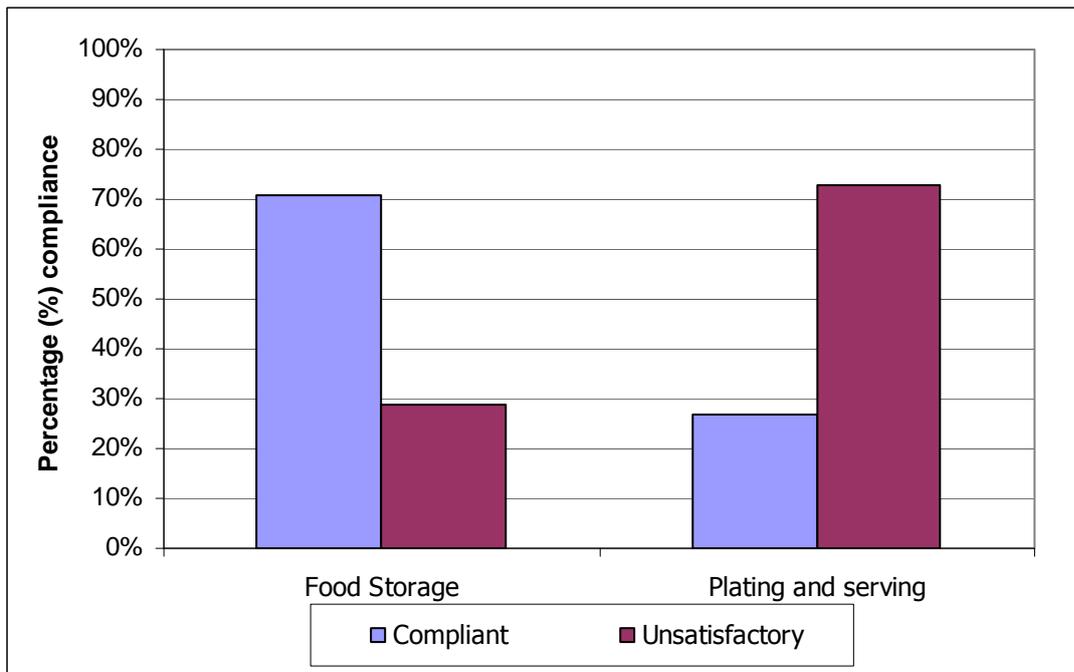
3.3 All FSPs implemented by small businesses complied with Standard 3.2.1

The study revealed that small vulnerable persons businesses were identified as the category size least likely to have implemented voluntary FSPs. However, all voluntary FSPs that had been implemented by these small businesses were found to comply with Standard 3.2.1³. In contrast, almost three-quarters of medium-sized businesses indicated that they had implemented a FSP but only 28% of these were judged by the Authority's food safety officers as being compliant with Standard 3.2.1³.

3.4 Less than one-third of businesses maintain food at appropriate temperatures and timeframes

The survey revealed that over two-thirds of businesses (71%) stored food at appropriate temperatures. However, less than one-third (27%) plated and served meals at the appropriate temperatures and timeframes. See Figure 3 below.

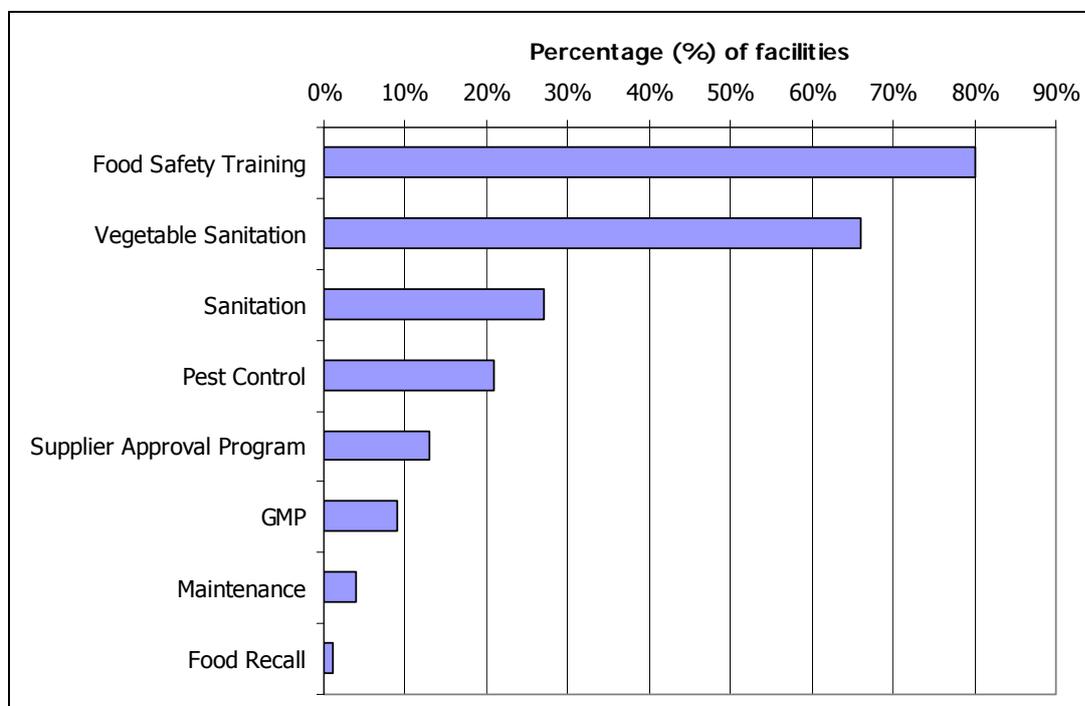
Figure 3. Temperature verification



3.5 Nearly half of the businesses surveyed had implemented support programs

Nearly half (48%) of the vulnerable persons businesses surveyed, indicated they had at least one support program in place. See Figure 4 below.

Figure 4. Percentage of businesses with implemented support programs



Although two-thirds (66%) of businesses surveyed indicated that they sanitise vegetables, the study revealed that only half of these businesses actually document and verify the process. Likewise, of the 80% of businesses that indicated that they trained staff in food safety; just over half of these businesses had formally documented their on-the-job food safety training programs.

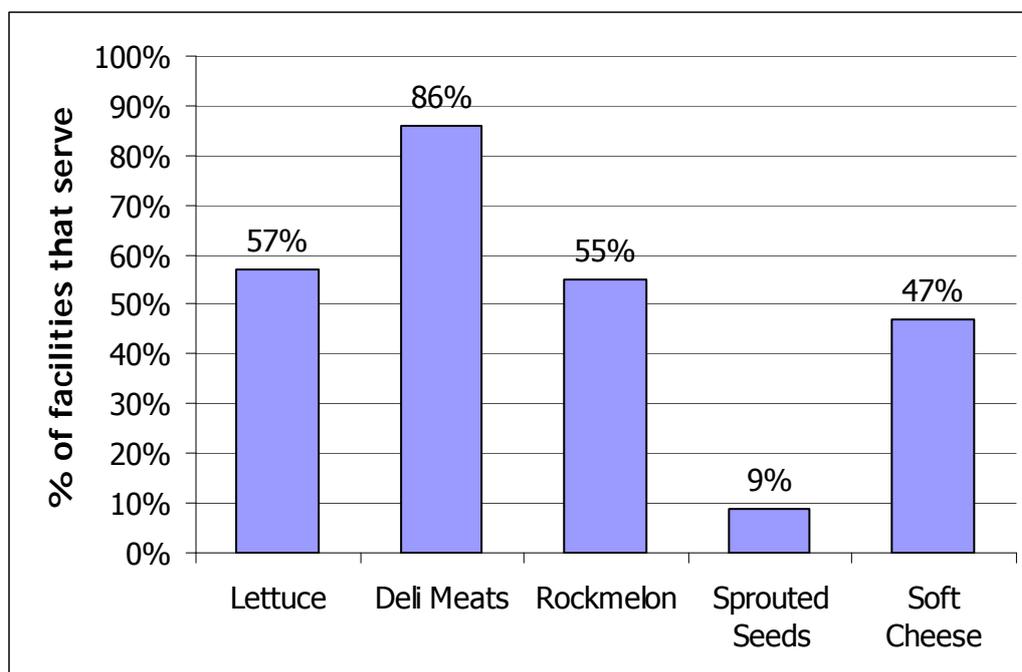
Support programs are prerequisite programs before implementing a FSP. With the introduction of mandatory FSPs, there will be an additional requirement for vulnerable persons businesses to introduce documented support programs such as pest control, sanitation and maintenance programs. The study found that, at the time of the sampling, a large number of vulnerable persons businesses did not have adequate support programs in place. This area has been highlighted as needing assistance during the implementation process.

3.6 Nine in ten vulnerable persons businesses serve high risk foods

FSPs in vulnerable persons businesses must specifically consider the risk of *Listeria monocytogenes*. Approximately nine in ten (92%) businesses surveyed indicated that they serve at least one type of high risk foodⁱⁱⁱ. In accordance with the *NSW Health Department circular on the control of foodborne listeriosis*^{iv}, one-third of businesses responded that they had identified and removed all high risk foods from their menu. However, when asked about particular menu items, the survey found that in fact only 8% of businesses did not serve any high risk food.

The most common high risk foods served was delicatessen meats (86%), with approximately half serving lettuce (57%), rockmelon (55%) and soft cheese (47%). See Figure 5.

Figure 5. Percentage of facilities that serve high-risk foods



ⁱⁱⁱ As defined by the NSW Health Department Circular on the control of foodborne listeriosis. In this case a high risk food relates to *Listeria* contamination. However, this list does not exclude those instances where high risk foods can be served by vulnerable persons businesses providing that it can be demonstrated that certain processing requirements designed to minimise the risk of contamination by *Listeria monocytogenes* have been managed as part of a FSP.

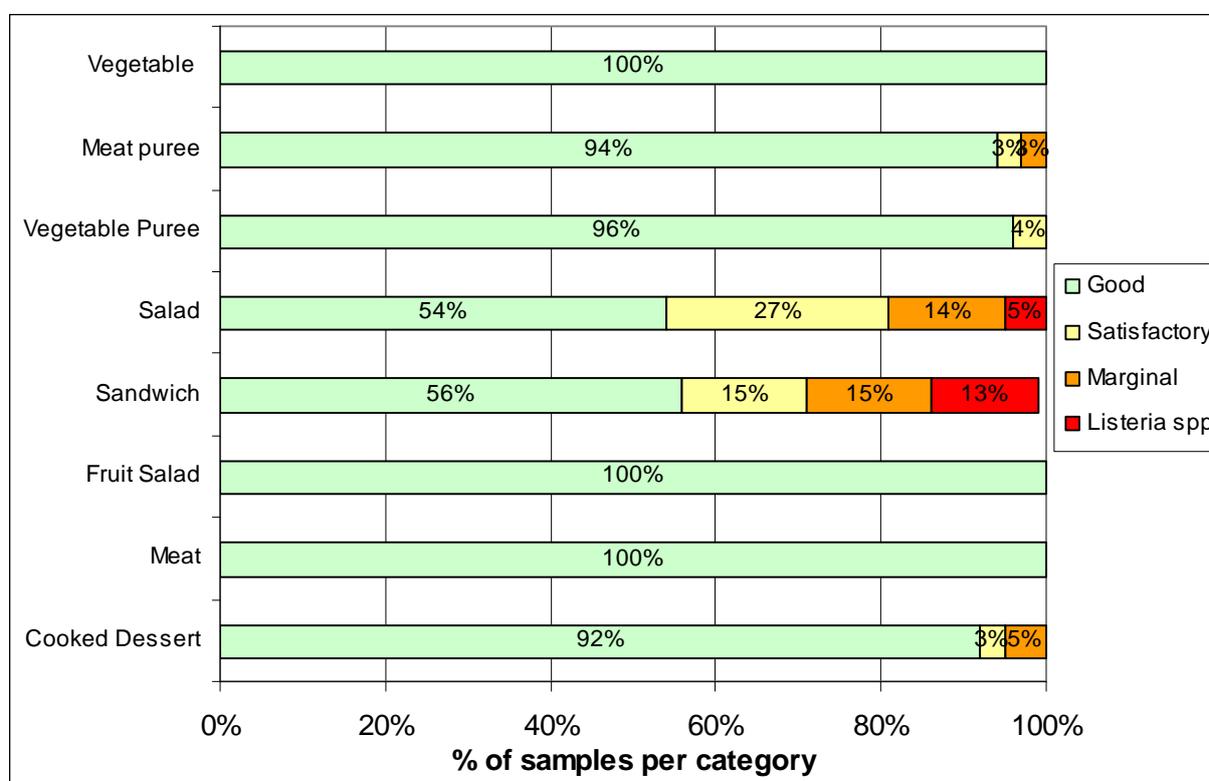
^{iv} Now withdrawn

3.7 No pathogens were identified in any samples

While no pathogens were identified in any of the 341 food samples analysed, some indicator organisms were isolated. *Listeria* spp. were identified in salads and sandwiches from six businesses (7% of all ready-to-eat (RTE) samples). As lettuce has been implicated as a potential vehicle for *Listeria* spp. it is noteworthy that it was identified as an ingredient in 45% of salads and sandwiches but not linked to any *Listeria* spp. results. Instead, the survey found delicatessen meats were the common ingredient in all sandwiches and salads where *Listeria* spp. was detected.

Rockmelon has also previously been identified as a potential vehicle for *Listeria*. No *Listeria* spp. was detected in rockmelon (n=6) tested. However, it must be noted that the small sample size and dry seasonal conditions (Spring 2003) limit the scope of these findings. See Figure 6.

Figure 6. Microbiological results of all food categories



Overall, the microbiological results indicated that the following food categories were found to contain other indicator organisms and therefore were an increased food safety risk:

- pureed food,
- RTE salads or sandwiches, and
- cooked-chilled desserts.

4. Vulnerable persons businesses need assistance implementing FSPs

The survey demonstrated that, at the time of sampling, vulnerable persons businesses had a limited understanding of FSP requirements as prescribed by Standard 3.2.1³. This highlighted the need for guidance to be provided to businesses on how they can comply with these requirements. The development of industry implementation assistance materials needs to include food safety guidelines and templates.

These findings will assist the development of the Authority's industry implementation assistance materials. In particular, the following areas need special consideration:

- serving high risk foods,
- implementing support programs,
- process controls for plating and serving meals, and
- food safety practices associated with pureed food, cooked desserts and salads or sandwiches containing delicatessen meats.

Data collected in this evaluation study also provides a benchmark against which the impact of the Authority's processes to implement mandatory FSPs can be measured in the future.

Appendix 1. Microbiological quality of food samples– selection and category criteria^v

	Indicator and pathogens	Categories of microbiological quality (CFU/g)			
		Good	Satisfactory	Marginal	Potentially hazardous
Salad	APC ^{vi} /g (Level 2)	<10 ⁶	10 ⁶ <10 ⁷	≥10 ⁷	N/A
	<i>E. coli</i>	<3	3-100	≥100	N/A
	Coliform/g (cooked meats only)	<100	10 ² - 10 ⁴	≥10 ⁴	N/A
	Coagulase +ve staphylococci	<100	N/A	N/A	>100
	<i>Listeria monocytogenes</i> /25g	not detected in 25 g	N/A	Listeria spp.	<i>L.m</i> detected
	<i>Salmonella</i> spp./25g	not detected in 25 g	N/A	Detected	Detected
Sandwich	APC/g (Level 1)	<10 ⁴	10 ⁴ <10 ⁵	≥10 ⁵	N/A
	<i>E. coli</i>	<3	3-100	≥100	N/A
	Coliform/g (cooked meats only)	<100	10 ² - 10 ⁴	≥10 ⁴	N/A
	Coagulase +ve staphylococci	<100	N/A	N/A	>100
	<i>Listeria monocytogenes</i> /25g	not detected in 25 g	N/A	Listeria spp.	<i>L.m</i> detected
	<i>Salmonella</i> spp./25g	not detected in 25 g	N/A	Detected	Detected
Fruit Salad	APC/g (Level 1)	<10 ⁴	10 ⁴ <10 ⁵	≥10 ⁵	N/A
	<i>E. coli</i>	<3	3-100	≥100	N/A
	Coliform/g (cooked meats only)	<100	10 ² - 10 ⁴	≥10 ⁴	N/A
	Coagulase +ve staphylococci	<100	N/A	N/A	>100
	<i>Listeria monocytogenes</i> /25g	not detected in 25 g	N/A	Listeria spp.	<i>L.m</i> detected
	<i>Salmonella</i> spp./25g	not detected in 25 g	N/A	Detected	Detected
Cooked dessert	APC/g (Level 1)	<10 ⁴	10 ⁴ <10 ⁵	≥10 ⁵	N/A
	<i>E. coli</i>	<3	3-100	≥100	N/A
	Coliform/g (cooked meats only)	<100	10 ² - 10 ⁴	≥10 ⁴	N/A
	Coagulase +ve staphylococci	<100	N/A	N/A	>100
	<i>Listeria monocytogenes</i> /25g	not detected in 25 g	N/A	Listeria spp.	<i>L.m</i> detected
	<i>Salmonella</i> spp./25g	not detected in 25 g	N/A	Detected	Detected
Hot meal (meat and vegetable)	APC/g (Level 1)	<10 ⁴	10 ⁴ <10 ⁵	≥10 ⁵	N/A
	<i>E. coli</i>	<3	3-100	≥100	N/A
	Coliform/g (cooked meats only)	<100	10 ² - 10 ⁴	≥10 ⁴	N/A
	Coagulase +ve staphylococci	<100	N/A	N/A	>100
	<i>Listeria monocytogenes</i> /25g	not detected in 25 g	N/A	Listeria spp.	<i>L.m</i> detected
	<i>Salmonella</i> spp./25g	not detected in 25 g	N/A	Detected	Detected
Pureed hot meal (meat and vegetable)	APC/g (Level 2)	<10 ⁶	10 ⁶ <10 ⁷	≥10 ⁷	N/A
	<i>E. coli</i>	<3	3-100	≥100	N/A
	Coliform/g (cooked meats only)	<100	10 ² - 10 ⁴	≥10 ⁴	N/A
	Coagulase +ve staphylococci	<100	N/A	N/A	>100
	<i>Listeria monocytogenes</i> /25g	not detected in 25 g	N/A	Listeria spp.	<i>L.m</i> detected
	<i>Salmonella</i> spp./25g	not detected in 25 g	N/A	Detected	Detected
	<i>Clostridium perfringens</i> (meat only)	<100	N/A	N/A	>100

^v This criteria is based on guidelines from Food Standards Australia New Zealand² and Food Safety Authority of Ireland (2001)⁵

^{vi} Aerobic Plate Count

References

- ¹ Food Science Australia and Minter Ellison Consulting (2002) National Risk Validation Project. NSW Department of Health and the Commonwealth Department of Health and Ageing.
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- ⁵ Food Safety Authority of Ireland (2001). *Guidelines for the interpretation of results of microbiological analysis of some ready-to-eat foods sampled at point of sale*. Guidance Note No. 3. FSAI, Dublin.