FOOD SURVEILLANCE
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Editorial – Surveillance of food hazards in Australia

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The World Health Organization and many countries around the world have recognised that monitoring contamination of foods is a key part of strong food safety infrastructure.[1] Traditionally the contaminants that caused most concern to food safety agencies were microorganisms, pesticide residues, and chemical contaminants, but the focus has now broadened to include genetically modified foods, food labelling and allergens.

Food surveillance has been defined as 'the continuous monitoring of the food supply to ensure consumers are not exposed to components in foods, such as chemical contaminants or biological hazards'.[1] Surveys that are regularly repeated to monitor long term trends of contaminants can be considered surveillance. In contrast to surveillance of human disease that considers morbidity and mortality, food surveillance monitors the occurrence of 'hazards' in the food supply.[2] In public health, there is a need to make sure that data arising from surveillance activities are provided to people who are in a position to act (see the World Bank Surveillance Toolkit http://survtoolkit.worldbank.org/). When it comes to surveillance of the food supply, this may mean people who manage and communicate about risks and other public health staff, including local council officers, disease control agencies, other government departments, industry and advisors to industry.

Food surveillance is complicated by the fact that the types of tests on foods are often not standardised between laboratories or jurisdictions, and the methods often vary from survey-to-survey. It is important that food surveys have clearly defined objectives and a well-planned method of collecting and analysing samples.[3] One of the most critical issues for conducting good surveys is the issue of sampling. The number of samples required for a survey depends on the expected rate of contamination of the food, the desired accuracy of the prevalence estimate, the distribution of that contamination (whether it is randomly dispersed throughout product items or strongly clustered through time, space or both) and the need to compare results between foods, geographic areas, times, seasons and other factors. For such comparisons to be valid it is imperative that probabilistic sampling methods are used as much as possible (these include simple random sampling, stratified random sampling and so on).[4]

The performance characteristics of the test can have a critical influence on the robustness of survey results and their interpretation. Stuttard *et al.* give an example that the probability of detecting *Salmonella* from ten replicated tests of a batch of desiccated coconut that is 1% contaminated is only 9.6%.[3] In many food surveys only single samples are ever collected from a batch making the probability of detecting contamination very small. Even when multiple samples are collected from a batch, the probability of correctly classifying the contamination status of that batch is not necessarily high. This sampling issue is known as 'herd testing' and has been reviewed in detail in the veterinary literature.[5] It is hoped that in the future a greater proportion of surveys for hazards in food can be based on tests and sampling procedures for which the performance characteristics have been objectively assessed. Such knowledge can be vital to agencies that conduct these surveys because it allows them to consider what action they will take if they find food that is contaminated and what assurances they provide in the case of negative tests.

The use of food survey data is becoming increasingly important in the development of risk assessments and risk management strategies. Survey data are vital to assess the likely exposure from consumption of food commodities.[6] Surveying the safety of foods during growing, harvesting, processing and transport is also important for identifying the best place to intervene and reduce human disease. A good example of repeated surveys for hazards in foods are the retail studies performed by the Australian Capital Territory Health Department which include a wide range of foods, including 'ready-to-eat' items, seafood, chicken meat, and most recently fried rice and sushi (see: http://health.act.gov.au/c/health?a=da&did=10060655).

These surveys are very important because they objectively quantify the probability of consumers being exposed to hazards. In the ACT survey of the microbiological quality of sushi only 63% of samples had a pH lower than 4.8. This relates directly to the results of Victorian Department of Human Services research into temperature control of sushi summarised in this issue of *Food Surveillance Australia New Zealand*. The Victorian research recommended that nigiri sushi may be held at temperatures up to 15 Celsius for up to 8 hours if the pH is lower than 4.8. The high proportion of sushi in the ACT survey that did not meet this pH requirement is a concern for consumers.

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This example emphasises that surveillance need not be confined to making measurements on 'hazards'. Measurement of food attributes (e.g. pH), processing attributes (e.g. temperature) and storage attributes (e.g. storage time) can be very useful when these are known determinants of product safety and food-borne disease. Sushi has recently been implicated in outbreaks of *Salmonella* and enterotoxigenic *E. coli* infection, which highlight the need to educate proprietors about proper preparation of sushi.[7, 8]

Surveillance of foods, along with the findings of investigations of foodborne disease outbreaks, are important to identify areas for intervention and make the food supply safer.[9] A national survey of sesame seed products reported in this issue of *Food Surveillance Australia New Zealand* was initiated following outbreaks of salmonellosis from imported tahini and halva.[10] The survey found that the level of contamination of sesame seeds was quite low, although one sample of white sesame seeds was positive for *Salmonella* Richmond. As a result of these outbreaks and positive samples, the testing frequency of sesame seed products imported into Australia was increased.

In recent years, there has been an increasing recognition of imported foods as a source of foodborne disease.[10] Surveillance of imported foods is important to safeguard the food supply and failures can indicate high risk foods requiring more intensive surveillance.[11] The reasons for testing failure of foods imported into Australia for the last two quarters of 2003 are documented in this issue of the newsletter. The data collection system for imported food testing is currently being revised. It will be important to see regular results of monitoring imported foods in future issues of this newsletter.

This issue of *Food Surveillance Australia New Zealand* also summarises a Western Australian survey showing that cooked chicken products are commonly contaminated with *Listeria monocytogenes*. *L. monocytogenes* infections may result in meningitis or septicaemia in neonates or people who are immunocompromised. There are approximately 60 cases of listeriosis in Australia each year, making it a rare form of foodborne disease.[10] However, listeriosis is a severe health condition and 20% of reported infections in immunocompromised individuals are fatal. The Western Australian survey found that 41% of chicken samples were contaminated with *L. monocytogenes*, which justifies the public health advice for pregnant women and immunocompromised people to avoid eating chicken products that may have been held at temperatures allowing *Listeria* to grow, including commercially cooked chicken.

Each Australian jurisdiction conducts numerous surveys into potential food safety issues each year. Without coordination and sharing of information there is a significant possibility of duplicating surveys. The Food Regulation Standing Committee's Implementation Sub-Committee has a working group to coordinate survey activity across Australia to avoid the likelihood of duplication. The working group documents current and future surveys so jurisdictions can see what surveys are planned, and allows multiple jurisdictions to join together and participate in single surveys. The survey of sesame seed products in this issue is an example of a coordinated national survey of food. *Food Surveillance Australia New Zealand* has an important role in sharing the information that Australian jurisdictions collect on the quality of foods supplied to consumers.

Hopefully in the future, food safety agencies will conduct joint surveys that run over successive years to allow monitoring of interventions.[12] At the moment, Food Standards Australia New Zealand is developing new food standards that extend to the primary production settings of farms and processing environments. Standards that are currently in development include those covering seafood, poultry meat and dairy products. National surveys of these commodities that are repeated regularly will be important for Australia to monitor the effect of these interventions in years to come.

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Sushi and Asian meat temperature control research

The Department of Human Services Food Safety Unit in Victoria has been aware of the increasing diversity of Victoria's ethnic population and their involvement in food retail and service businesses. This has resulted in the availability of a wide variety of cuisine. Some of these foods, when prepared traditionally, could have their quality and flavour compromised if they complied with the strict temperature requirements of the Food Safety Standards.

The Food Safety Unit in Victoria conducted research in 2003-04 on the following traditional foods:

Sushi products

- Nigiri pieces and Nori Rolls, and

Asian meats

- Chinese style Roast Duck ('Peking Duck'),
- Chinese Style Chicken and
- Chinese Style Roast and Barbequed Pork.

Scientific validation was sought on the safety of these products - under alternative temperature control arrangements (within the temperature danger zone of 5 ºC – 60 ºC).

Research and microbiological testing found that with a pH of 4.8 or less the Sushi products, Nigiri pieces and Nori Rolls, can be kept at 15 ºC or less for a period of up to, eight or twelve hours, respectively.

The Food Safety Standards require all potentially hazardous food to be handled and displayed under temperature control - cold foods at 5ºC or less and - hot foods at 60ºC or greater.

The interpretation guidelines to the Standards, however, permit these foods to be out of temperature control for up to 4 hours. Any greater time than this requires scientific validation.

The Victorian Food Act requires that all Victorian food businesses must have lodged a Food Safety Program with their Local Council after 1 February 2002 upon registering or re-registering.

The Food Safety Unit have developed templates to assist food businesses in developing their own Food Safety Programs.

A Food Safety Program is a written plan that shows what a food business is doing to manage the safety of the food they prepare, serve, manufacture and sell.

Access the templates and further information through the website http://www.health.vic.gov.au/foodsafety/ or by contact the Food Safety Unit on 1300 364 352.

Similar testing of the Asian meats found that, if prepared and handled in specific ways, they can be left on display at ambient temperatures. Chinese Style Duck and Chicken can be left on display for up to twenty-two hours, with internal temperature of no more than 25 ºC, while Chinese Style Roast and Barbeque Pork can be on display for up to seven hours.

As a result of this research, the Food Safety Unit has developed and adopted two additional supplements for the existing Food Safety Program templates. They are:

Supplement B – Sushi, and

Supplement C – Chinese style products.

Both Supplements B & C are optional and businesses can choose to use them or adhere to the current requirements under the Food Safety Standard. The development of these supplements recognises the benefits of traditional food preparation and storage. The use of these new templates allows food businesses to display and keep certain foods out of the standard temperature control range.

For Further Information

Read the full report, *Foods kept under alternative temperature control: Sushi products – Nigiri pieces and Nori Rolls; Asian meats – Chinese style Roast Duck ('Pecking Duck'), Chinese Style Chicken and Chinese Style Roast and Barbequed Porks*), using the following link: www.health.vic.gov.au/foodsafety/research/microbiological or Contact Food Safety Officer Violette Lazanas of the Food Safety Unit with the Victorian Department of Human Services, on (03) 9637 4086

Victorian Food Safety News – Have you read this new publication?

In June 2004 the Department of Human Services Food Safety Unit in Victoria introduced a news journal for the food and food safety industry. Victorian Food Safety News will highlight developments, projects, initiatives and best practice examples in food safety. It also attempts to raise the profile and strategic importance of food safety. Volume 1 includes articles on kebabs, freshly squeezed juices, meat pies and food safety and can be read by accessing the following link:

Volume 2 is also available by accessing: http://www.health.vic.gov.au/foodsafety/downloads/foodsafety_news_autumn05.pdf

Dioxins in Food – Dietary Exposure Assessment and Risk Characterisation

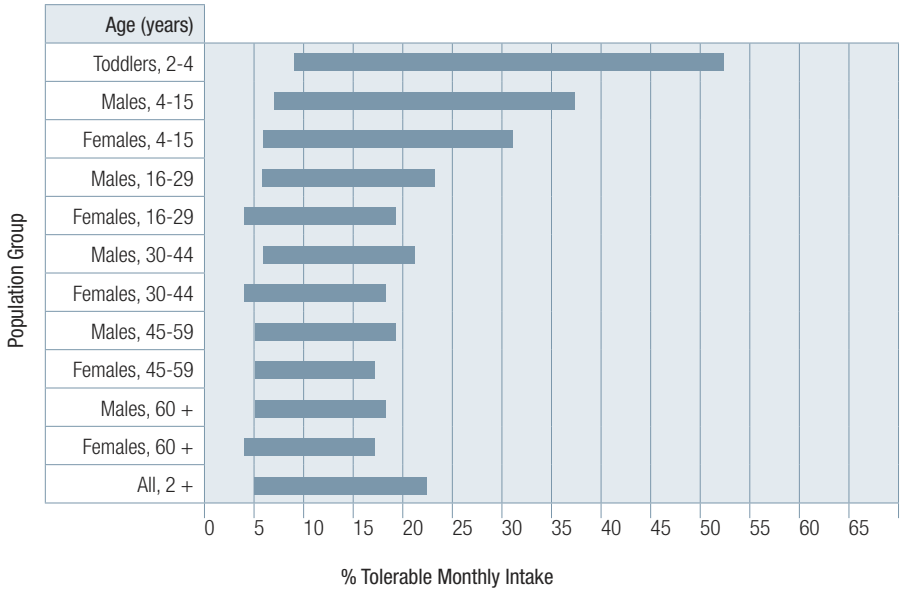
The term 'dioxins' refers to a group of chlorinated chemicals that are chemically stable and can remain in the environment for a long time. Dioxins include the polychlorinated dibenzodioxins (PCDDs or dioxins), the closely related polychlorinated dibenzofurans (PCDFs or furans) and certain polychlorinated biphenyls (dioxin-like PCBs, or PCBs). Dioxins enter the food chain when animals eat contaminated plants. The dioxins are then absorbed into the animal fat, increasing in concentration as they migrate up the food chain. The consumption of animal products with high fat content, such as meat and dairy products, can increase human exposure to dioxins.

As part of the National Dioxins Program, an Australian Government funded initiative implemented by the Department of the Environment and Heritage, Food Standards Australia New Zealand (FSANZ) examined dioxin levels in a range of foods to determine the level of dioxin exposure of Australians through food and to assess the human health risk. This assessment contributed to the human health risk assessment undertaken by the Department of Health and Ageing that considered the overall impact of dioxins from all sources on human health.

Mean range of dioxin concentrations in food, in pg TEQ/g fresh weight

Food	Concentration range
Bacon	0.025-0.083
Baked beans	0.0012-0.016
Bread, white	0.00067-0.026
Butter	0.028-0.27
Chicken breast	0.0044-0.021
Eggs	0.0088-0.057
Fish fillets	0.59-0.64
Fish portions	0.019-0.039
Hamburger	0.00050-0.027
Infant formula	0.0036-0.018
Lamb chops	0.0044-0.045
Leg ham	0.0016-0.017
Liver pate	0.0025-0.043
Margarine	0.0025-0.058
Milk chocolate	0.0077-0.056
Milk, whole	0.0023-0.012
Minced beef	0.0054-0.048
Orange juice	0.00018-0.007
Peanut butter	0.035-0.25
Potatoes	0.00029-0.014
Sausage	0.0096-0.058
Tuna, canned	0.029-0.041

Mean range of exposures to dioxins for each population group in Australia, as a percentage of the Tolerable Monthly Intake.



Dioxin dietary exposure is determined by examining dioxin levels in various foods and combining this with information on the daily diet of the population. Foods likely to contain dioxins are those that contain animal fats, such as dairy products, meat and meat products, fish and eggs.

Dioxin levels in food were determined by analysis of 168 samples of 22 randomly sampled foods from Australian retail outlets which were prepared ready to eat. The mean range of dioxin concentrations found in the foods analysed are set out in the adjacent table. The survey found that Australian foods have low levels of dioxins – similar to those reported in New Zealand and lower than the levels found in some European and north American surveys.

These results were then combined with dietary information from the 1995 National Nutrition Survey to assess the population's dietary exposure. The figure above shows that for all age groups from two years and over, the estimated monthly dietary levels of exposure to dioxins, for both the average and high consumer, were well below the Australian Tolerable Monthly Intake of 70 pg TEQ/kg body weight/month.

Because of their high dietary intake relative to body weight, highest mean intakes for all age groups occur in infants and toddlers. In general terms, the estimated monthly level of exposure to dioxins for Australians (3.7-15.6 pg TEQ/kg body weight/month, lower to upper range) is similar to that of New Zealand (11.1 pg TEQ/kg body weight/month, middle value for adult males) and lower than that of other industrialised nations for which survey data were available. For example in the United Kingdom, the estimated exposure to dioxins for the population was 15-21 pg TEQ/kg bw/month.

The major foods contributing to dioxin exposure for the Australian population over a lifetime were fish (including crustaceans and molluscs), milk and dairy products. For toddlers and children, the major foods contributing to dioxins exposure were milk and dairy products.

As there are limitations associated with the data used to characterise the risk associated with exposure to dioxins from food, in general, conservative assumptions were used to minimise the possibility that risks would be underestimated. On the basis of this analysis the public health and safety risk for all Australians from exposure to dioxins from foods is very low.

A copy of the full FSANZ report and associated information on dioxins in food is available on the FSANZ web site at: http://www.foodstandards.gov.au/whatsinfood/dioxinsinfood.cfm.

Further information on the National Dioxin Program is available from the Department of the Environment and Heritage at: http://www.deh.gov.au/industry/chemicals/dioxins/index.html .

Microbiological Survey – Sesame Seeds and Sesame Seed Products

Background

In Australia and overseas, sesame seeds and sesame seed products (tahini, halva, hummus and baba ghanouj) have been linked with outbreaks of foodborne illness, mainly due to contamination with *Salmonella*. Most of the products implicated in recalls and foodborne illness in Australia were produced in Middle Eastern countries. Domestic testing of sesame products over the last 20 years has resulted in the detection of salmonellae on numerous occasions. However, testing of imported halva by the Australian Quarantine Inspections Service (AQIS) for three months in 2001 did not result in the detection of *Salmonella*, and testing of imported tahini for a number of months in 2003 only resulted in one *Salmonella* detection out of 39 samples (AQIS unpublished data, 2003). Over the same period in 2003, *Salmonella* was detected in imported halva and tahini available on the domestic market. Therefore, AQIS test results suggest that *Salmonella* contamination of sesame seed products may occur at very low levels, or is sporadic and as such is not routinely picked up by imported food tests.

In most outbreak and recall cases in Australia, *Salmonella* contamination in implicated sesame seed products appears to have occurred prior to importation. However, the potential for *Salmonella* contamination of these products within Australia cannot be fully ignored. The survival of *Salmonella* in contaminated products is aided, especially in tahini, by a very long shelf life. *Salmonella* survives for some time in tahini and products made using tahini as an ingredient may in turn be contaminated. As these products are often not cooked, any pathogens present may not be subjected to a kill step. In addition, amplification of *Salmonella* numbers can occur because the manufactured product often has a higher water activity than that of tahini, thus allowing for growth of *Salmonella*.

Aim of Survey

The aim of the survey was to provide further information on *Salmonella* contamination of domestically produced and imported sesame seed products available on the Australian market, and was intended to supplement the testing of imported products at the border. The survey was not intended to be comprehensive but rather to provide a 'snapshot' as to whether there are contaminated products on the Australian market. The survey also helped inform whether the current imported food testing regime is adequate in testing for *Salmonella* in terms of the number of samples taken per batch and the sensitivity of the analytical method.

Survey Method

This survey was coordinated by FSANZ in conjunction with interested State and Territory jurisdictions.

Victorian, Tasmanian, Queensland, South Australian and New South Wales health agencies collected samples during the first two weeks in May 2004. A total of 40 samples, approximately half domestic and half imported, were collected and tested. To investigate whether the current food sampling regime was sufficiently sensitive, 5 sub-samples of product within the same lot code (minimum weight of 25 g) were taken for each sample.

Types of sesame seed products sampled included sesame seeds, tahini, halva, hummus and baba ghanouj. Canned products were not sampled, as they were likely to be sterile. Samples were selected from a range of outlets including wholesalers, supermarkets, fast-food outlets/restaurants and grocers/delis. Product details were recorded to allow trace-back, if necessary.

The temperature of refrigerated samples was taken at the time of purchase. To avoid microbial growth samples were transported to the analytical laboratory at 0-4 °C.

Analysis

The Microbiological Diagnostic Unit Public Health Laboratory at the University of Melbourne conducted sample preparation and analysis.

Samples were analysed using the method in the Australian Standard AS1766.2.5: Examination for specific organisms – salmonellae, for the detection of salmonellae in foods. Enumeration of the positive sample was carried out by using a 3 tube MPN technique.

Results

The survey of sesame seeds and sesame seed products resulted in *Salmonella* detection in one (imported white sesame seeds) of the 40 samples analysed. The sample was identified as being positive for *Salmonella* Richmond.

Upon further investigation of the positive sample, *Salmonella* was detected in all five sub-samples. There was a substantial variability in the counts obtained when three of the sub-samples were enumerated, as set out in the table below.

Enumeration for *Salmonella*-positive sub-samples.

MDU Number	Count/g	Confidence interval
0411056	0.09	0.01-0.36
0411058	0.23	0.04-1.2
0411060	0.75	0.14-2.3

Enumerations were performed twice for each sub-sample and results were often not repeatable. This variability may be due to a variety of reasons including:

- Uneven distribution of bacteria within a batch, although *Salmonella* was detected in five of the five sub-samples tested.
- The low precision associated with the MPN test, that is, test results have a wide confidence interval. To quote Clause 9.4.5 of ISO 7218 (now adopted as AS5013.14-2004), "*It is well known that large variations in results can be observed with the MPN technique. Consequently, results obtained according to this method shall be used with care*." This technique is used when we need to enumerate very low bacterial counts as conventional plating techniques can only detect, at best, counts greater than 10 cfu/g.

Discussion

As a result of this survey, and given that product details were recorded, the product that tested positive for *Salmonella* was recalled by the appropriate jurisdiction. In addition, AQIS were advised of the details of the contaminated product.

S. Richmond is isolated rarely in Australia, is non-endemic and not recognised as currently rampant. The National Enteric Pathogen Surveillance Scheme database contains 19 human records and two non-human records since 1978 and 1983 respectively, the most recent case being in 2003. The majority of human infections were acquired overseas (India, Indonesia and Malaysia), with one unknown following a bone-marrow transplant. The two non-human isolates occurred in mutton and curry powder.

The isolation of this serovar adds support to the argument that *Salmonella* contamination of sesame products occurs prior to importation. Similarly rare serovars isolated from sesame seed products in the past include *S*. Montevideo and *S*. Typhimurium DT104.

Until recently, imported sesame seed products were randomly tested by AQIS under the Imported Food Program (IFP), at a rate of 5%. As of 17 August 2004, all sesame seed products have been included on the AQIS IFP 'Risk List' to be tested for *Salmonella*. Within the IFP Risk List there is provision to reward importers with a good compliance history, and maintain a higher inspection frequency

Microbiological Survey – Sesame Seeds and Sesame Seed Products

for those with poor compliance. As such, initial shipments from a producer are tested at the 100% rate, and after five clear samples the testing rate drops to 25%. After a further 20 clear samples, testing drops to the lowest rate of 5%. Sampling continues at this rate unless a positive sample is detected. Risk categorised food is not released for sale until analytical results are known. Should a positive sample be detected a product sampling reverts to the 100% rate. The higher initial level of testing is more likely to detect *Salmonella* contamination given its sporadic and unpredictable nature.

The number of sub-samples taken per sample of imported sesame seed product varies depending on the number of lots (batches) contained within the one shipment. For a shipment containing one lot of sesame seed product a maximum of five sub-samples are taken. Given the lack of detections of *Salmonella* through the IFP, concerns had been raised that the sampling regime was inadequate to detect possible low levels of contamination. However, from the results of this survey (the five sub-samples being positive), it appears that low levels of contamination may be detected at the current IFP sampling rate and no change is necessary at this stage.

In addition to this survey, the NSW Food Authority recently sampled and analysed an additional 20 sesame seed products, including hummus, sesame seeds, tahini, sesame cookies and sesame snaps. *Salmonella* was not isolated from any products. While the same analytical method was used for each survey, the NSW study analysed an individual sample from each lot, rather than taking a number of sub-samples.

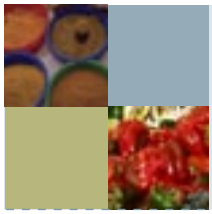
FSANZ is considering conducting a second phase of sampling of sesame seed products in the warmer months to determine if there is any seasonal variation that may be associated with the rate of *Salmonella* contamination.

Conclusions

This survey has provided additional information as to whether sesame seed products that are contaminated with *Salmonella* are on the Australian market.

Salmonella was detected in all sub-samples for the one positive sample, despite variation in the enumeration. Therefore, it appears that the current advice to AQIS in relation to the sampling and testing of sesame seed products is adequate in terms of the number of samples taken per lot and sensitivity of the test.

The higher initial rate of testing specified under the risk list should allow a greater chance of detecting sporadic *Salmonella* contamination in sesame seed products. ■



Hand washing – we don't always do the right thing

In 2002, the Food Safety Information Council (FSIC) released the results of two surveys on hand washing. A quantitative survey, conducted by Newspoll, tested people's knowledge of effective hand washing techniques and a qualitative study examined how well this knowledge was put into practice.

Over the past two years, both the FSIC and Food Standards Australia New Zealand (FSANZ) have received many requests for information about the results of these surveys. The FSIC has now developed a paper giving information about the two studies and their results.

The Newspoll survey of 1250 respondents showed that the vast majority of people knew that it was safe, before handling food, to wash their hands using soap and water and drying thoroughly. However, quite a large minority also thought it was safe to prepare food after just rinsing their hands under water or without using soap.

The qualitative study observed the actual behaviour of 200 men and women in the public toilets at a suburban shopping centre. The study showed that only 20% of females and 7% of males observed used the correct procedure of washing their hands for at least 10 seconds, rubbing soap all over their hands, rinsing and drying for 10 seconds with a clean towel or 20 seconds with a hand dryer. 8% of females and 29% of males failed to wash their hands at all after going to the toilet.

Both studies showed that the worst knowledge and practice came from males of all age groups.

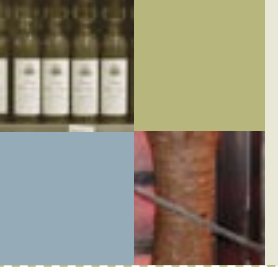
These studies showed that although there has been a considerable increase in the recognition of the need to wash hands correctly since a national survey in Australia in 1997, there is clearly an ongoing need for consumer education to translate the knowledge of what should be done to keep food safe into actual safe handling practices. Correct hand washing should be a major element of that education.

For more information

Read the paper on the Food Safety Information Council website, www.foodsafety.asn.au

or

Contact Tania Bradley, Project Coordinator, the Food Safety Information Council at info@foodsafety.asn.au or phone 0407 626 688.



Western Australian Food Monitoring Program

Microbiological quality of cooked chicken meat 2003-2004

The Western Australian Food Monitoring Program (WAFMP) has recently released its report on the microbiological quality of cooked chicken meat sampled in late 2003. Samples were taken from wholesale and manufacturer levels as well as retail food outlets. The survey focused on investigating the levels of contamination by *Listeria monocytogenes* in cooked chicken products as well as looking at general microbiological parameters relating to the microbiological quality of cooked chicken meat. Information was also collected on the temperature at which the chicken meat products were being stored.

Local Governments sampled 94 cooked chicken products across the Perth metropolitan area in late November to early December 2003. These included additional samples taken by the City of Melville whilst further investigating the microbiological quality of a manufacturer's products. The samples were analysed at the PathCentre, Food Hygiene Laboratory in Perth.

Listeria monocytogenes was present in 41% (39/94) of samples. The survey found that 28% of products (26/94) had an Aerobic Plate Count (APC) in excess of 1,000,000 cfu. One sample demonstrated significantly high level of *Escherichia coli* – a level of 2900 cfu/g, indicating that the product was unfit for human consumption.

No results showed levels of coagulase positive staphylococci above 100 cfu/g. Of the 94 samples submitted, a product temperature was recorded for 67% (63/94) of samples. Unsatisfactory storage temperature was recorded for 17% (11/63) of the samples where temperature at the point of sale was recorded.

Overall, the survey found there was a significant level of non-compliance with the microbiological guidelines at both retail and manufacturer level, this presents an elevated risk to public health and safety. Refer to FoodWatch 4, Western Australian Food Monitoring Program, Microbiological Guidelines for Ready-to-Eat Foods, http://www.population.health.wa.gov.au/Environmental/Resources/Microbiological%20guidelines%20for%20ready%20to%20eat%20food.pdf

As with previous surveys, incorrect holding temperatures have been linked to the presence of pathogens and a higher degree of bacterial contamination. Products that were kept above 60 ºC had no *Listeria monocytogenes* and low APCs. Many manufacturers were found to be producing products that were unsuitable, whilst some products were unfit for human consumption.

This fact highlights the need for the public, particularly the elderly and immunocompromised who may be vulnerable to Listeria infections, to be aware of the high-risk nature of cooked chicken products. Manufacturers and retailers must ensure that temperature controls and cross contamination issues are identified and managed within the food business to ensure safe food is produced.

The additional samples taken by the City of Melville – associated with further investigation of the microbiological quality of a manufacturer's products – resulted in a public recall of the product. Subsequently the manufacturer of the offending product has introduced increased temperature processing requirements to avoid a repeat of this problem.

The report was made available to the Meat Safety Branch within the Department of Health (WA) for follow up with wholesale producers who had products that failed to meet the Microbiological criteria for ready to eat foods in FoodWatch 4. Auditing of the microbiological quality component of their quality assurance programs was given additional emphasis to ensure that they were producing safer products.

Retailers identified in this survey were notified to the relevant local governments. In any instances where cooked chicken products failed due to poor temperature control or cross contamination in retail food processing (i.e. not the fault of the manufacturer), then additional inspections and microbiological sampling was encouraged.

Updated advice from the Department of Health (WA) was also issued to the public via a media release, warning at risk populations that cooked chicken meat products were still a concern and to ensure that if they intended to eat a product made of pre-cooked chicken meat that the product was served hot, or had been refrigerated prior to consumption.

For more information

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Read the full report *West Australian Food Monitoring Program Microbiological quality of cooked chicken meat 2003-2004* using the following link:

http://www.population.health.wa.gov.au/environmental/resources/MicrobiologicalQualityCookedChicken041026.pdf

Read more about Listeria from the following link:

Listeria and Food Brochure from the FSANZ website http://www.foodstandards.gov.au/whatsinfood/listeria/index.cfm

Read about the results of an earlier WAFMP survey investigating hot chicken rolls as reported in Food Watch, Western Australian Food Monitoring Program: Are Hot Chicken Rolls Safe to Eat? -

http://www.population.health.wa.gov.au/Environmental/Resources/Are%20hot%20chicken%20rolls%20safe%20to%20eat.pdf

FoodWatch, Western Australian Food Monitoring Program have also published Microbiological Guidelines for Ready-to-Eat Foods -

http://www.population.health.wa.gov.au/Environmental/Resources/Microbiological%20guidelines%20for%20ready%20to%20eat%20food.pdf

In the pipeline...

The Food Section of the South Australian Department of Human Services has completed a survey looking at artificial food colours in a range of processed foods and beverages. A report will shortly be released. Look for a summary of the outcomes in a future edition of the newsletter.

The Western Australian Food Monitoring Program has recently completed a survey of the microbiological quality of fresh gourmet lettuce leaves, basil, coriander and parsley products. Watch out for a summary of this survey in a future edition of the newsletter.

The Report of the 21st Australian Total Diet Survey is expected to be released mid 2005. Work on the 22nd Australian Total Diet Survey is progressing well. Sampling and laboratory analysis is now complete. Results are being checked before dietary exposure assessments begin in May/June 2005.

AQIS Imported Food Program – 3rd & 4th quarter 2003 results

The Australian Quarantine and Inspection Service (AQIS) produces a summary report every three months on the results of inspection and testing of imported foods under the *Imported Food Control Act 1992*. The reports are compiled some time after the quarter is finished to allow time for all results and confirmatory testing to be completed.

How much imported food is tested?

AQIS inspects approximately 5% - 10% of all foods coming into the country, although some foods are inspected at a higher rate. The percentage varies as the frequency of inspection is determined by the risk rating assigned to the food and the compliance history of that type of food from that source.

Types of testing

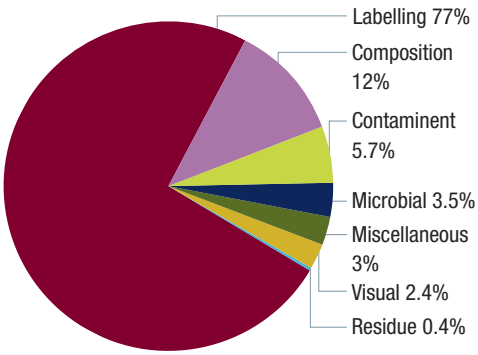
Where an imported food is selected for inspection, it is subjected to a visual/label inspection and where relevant analytical tests may also be applied. More than one test may be assigned to a particular food within a consignment, and several lots may also be tested. The number of tests does not therefore reflect the number of foods tested.

3rd quarter 2003 results

Outlined below are the outcomes of AQIS testing from 1 July 2003 to 30 September 2003. During this period 29 990 tests were conducted on selected imported foods. Of these tests only 574 failed tests (1.9%) were recorded. Putting it another way, 98.1% of the tests conducted on inspected foods complied with the testing criteria.

The breakdown of test failures for the quarter is illustrated in Figure 1. In the very small number of situations where inspected foods were found not to comply, it was found that the majority of non-compliance was for labelling failures (76.5%). This is not unusual as the labelling requirements in the *Australia New Zealand Food Standards Code* (the Code) are relatively new and other countries do not have the same labelling requirements as Australia and New Zealand. However, having said this there has been a 10% reduction in labelling non-compliance since the last quarter as importers have the option to relabel imported food to bring labels into line with the Code before an AQIS inspection is carried out. It can be seen that labelling failures would decrease by 74% if a valid ingredient list, lot code, importer details, country of origin and nutrition panel were correctly declared.

Figure 1: Summary of failed food (failure by element type)



After labelling, the next area of non-compliance was 'composition' failure. Of the many compositional tests applied, there were 53 failed tests across a wide range of products. These test failures included non-permitted vitamins in products such as flavoured chips, fruit tea, cereals and jelly, colours in products such as luncheon meat, candy, vegetarian sausages and edible undies, and various protein energy bars failed to meet the requirements of the Formulated Supplementary Sports Foods Standard.

In addition, prohibited plant species were detected in pickled vegetable (bracken) and frozen prepared cuttlefish (stevia). Excess sulphur dioxide levels were detected in mustard and dried shrimp.

In the tests for 'contaminants' there were 26 failed tests. The main failures were: aflatoxin, in peanuts, peanut snacks and satay sauce (8 failed tests); 3-MCPD in soy sauce (2 failed tests); mercury in shark and tuna (6 failed tests); histamine in anchovy and tuna (5 failed tests); as well as a failure for erucic acid in mustard oil, lead in dried dates, cadmium in peanuts, and chloramphenicol in honey.

In the microbiological testing, there were only 16 failures for exceeding microbiological limits, 9 of these were seafood and 4 for cheese. Seven failures related to excessive Standard Plate Counts and the remaining nine related to failures for *Salmonella* species, *Listeria monocytogenes, Escherichia coli*, and a *Pseudomonas* detection in mineral water.

4th quarter 2003 Results

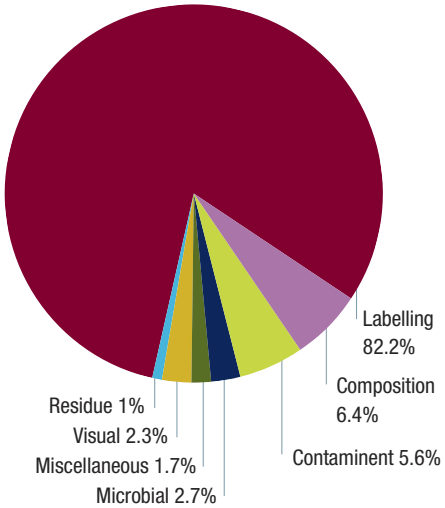
The outcomes of AQIS testing of imported food from 1 October 2003 to 31 December 2003 are illustrated in Figure 2. In this quarter 31 676 tests were conducted on selected foods. 98.7% of the tests conducted on inspected foods complied with the testing criteria while only 417 failed tests (1.3%) were recorded.

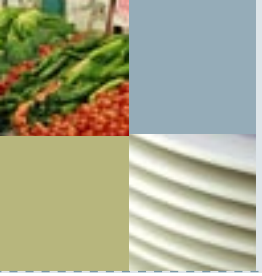
Of the small number of failed tests the majority of non-compliance was for labelling failures (82.2%). This continues to reflect relatively recent labelling changes. This is an increase since last quarter but the level of labelling non-compliance varies depending on the country the food is originating from and the level of awareness of the importer of Australian requirements. This quarter has seen a decrease in the number of composition, contaminant and microbial failures.

After labelling, the next area of non-compliance was 'composition' failure. There were 31 failed tests across a wide range of products. These test failures included non-permitted vitamins in products such as fruit drink/juice, breakfast cereals and sauce; colours in products such as luncheon meat, candy, carbonated beverages and taro powder; and some potato chips and carbonated soda beverages contained non-permitted artificial sweeteners.

In addition, some sea vegetables contained the prohibited plant species stevia, some salty plums and mangoes contained the prohibited preservative benzoic acid, some breakfast cereal contained excess iodine, and excess sulphur dioxide levels were detected in sun-dried tomatoes and seasoned crab.

Figure 2: Summary of failed food (failure by element type)





AQIS Imported Program

In the tests for 'contaminants' there were 27 failed tests. The main failures were: aflatoxin in peanuts, salad dressing, satay sauce, brazil nuts, peanut cookies and peanut crisps (15 failed tests); 3-MCPD in soy sauce and oyster sauce (3 failed tests); histamine in dried mackerel, sardines and cured tuna (3 failed tests); mercury in chilled tuna (2 failed tests); cadmium in peanuts (2 failed tests), as well as a failure for lead in dried dates.

In the microbiological testing, there were only 13 failures for exceeding microbiological limits, 11 of these were in seafood and 1 was in *Gymnema sylvestris* (herb) powder. Nine failures related to excessive Standard Plate Counts and the remaining four related to failures for *Salmonella* species, *Listeria monocytogenes, Escherichia coli*, and one incident of *Bacillus cereus* detection in bean curd.

1st and 2nd quarter 2004 results.

In mid 2004 the AQIS ceased the manual collation of national figures of food failures from the inspection and testing of imported foods under the *Imported Food Control Act 1992*. These national figures were to be automatically collated by a new electronic system. However because there have been delays in the implementation of this system, it has delayed the availability of the 2004 failed food results.

For more information

Browse the AQIS webpage: http://www.aqis.gov.au or ask about imported food matters: (02) 6272 4934 ■

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Food Surveillance ANZ is a newsletter that is published electronically on the FSANZ website. It is NOT available in hard copy. As soon as it is published on the website, an email announcing its publication is sent to subscribers on the Food Surveillance ANZ database, maintained by FSANZ. The email includes a direct link to the newsletter on the FSANZ website.

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1. Log on to FSANZ's website www.foodstandards.gov.au or www.foodstandards.govt.nz
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