

Imported food risk statement
Ready-to-eat cooked poultry pâté and poultry livers and *Salmonella* spp.

Commodity: Ready-to-eat (RTE) cooked poultry pâté, poultry pastes and poultry livers. This includes all poultry e.g. chicken, duck, geese and turkey. Ambient stable sealed packages are not covered by this risk statement.

Microorganism: *Salmonella* spp.

Recommendation and rationale
<p>Is <i>Salmonella</i> spp. in RTE cooked poultry pâté and livers a medium or high risk to public health:</p> <p><input type="checkbox"/> Yes</p> <p><input checked="" type="checkbox"/> No</p> <p><input type="checkbox"/> Uncertain, further scientific assessment required</p> <p>Rationale:</p> <ul style="list-style-type: none">• Limited evidence for commercially prepared RTE cooked poultry liver and pâté being contaminated with <i>Salmonella</i> spp. or causing illness in humans• Cooking to an internal temperature of 66°C for 5 minutes or equivalent will achieve a greater than 7 log₁₀ reduction in <i>Salmonella</i> spp.

General description
<p>Nature of the microorganism:</p> <p><i>Salmonella</i> spp. are facultative anaerobic Gram-negative, non-spore forming rod-shaped bacteria. They are found in the intestinal tract of warm and cold-blooded vertebrates and in the surrounding environment (FSANZ 2013).</p> <p>Growth of <i>Salmonella</i> spp. can occur at temperatures between 5.2 – 46.2°C, pH of 3.8 – 9.5 and a minimum water activity of 0.93 when other conditions are near optimum. <i>Salmonella</i> spp. can survive for months or even years in low moisture foods and are able to survive frozen storage at -20°C. <i>Salmonella</i> spp. are sensitive to normal cooking conditions, however, foods that are high in fat and low in moisture may have a protective effect against heat inactivation (FSANZ 2013; Li et al. 2013).</p>
<p>Adverse health effects:</p> <p><i>Salmonella</i> spp. are a serious hazard as they cause incapacitating but not usually life threatening illness of moderate duration, and sequelae are rare (ICMSF 2002). People of all ages are susceptible to salmonellosis. However, the elderly, infants and immunocompromised individuals are at a greater risk of infection and generally have more severe symptoms (FSANZ 2013).</p> <p>Gastroenteritis symptoms include abdominal cramps, nausea, diarrhea, mild fever, vomiting, dehydration, headache and/or prostration. The onset of illness is typically 24 – 48 hours after infection (range of 8 – 72 hours) and symptoms usually last for 2 – 7 days. Severe disease such as septicaemia sometimes develops, predominantly in immunocompromised individuals. The fatality rate for salmonellosis is generally less than 1% (FDA 2012; FSANZ 2013).</p> <p>The particular food matrix and strain of <i>Salmonella</i> spp. influence the level of <i>Salmonella</i> spp. required for illness to occur. It has been reported that as low as one or 100 cells caused illness, however, in other cases significantly more cells were required for illness to occur (ICMSF 1996; FDA 2012).</p>

Consumption patterns:

Cooked poultry pâtés and livers was reported to be consumed by 0.1% of children (aged 2-16 years), 0.5% of adults (aged 17-69 years) and 0.5% of people aged 70 and above in the 1995 National Nutrition Survey (McLennan and Podger 1999). In the 2007 Australian National Children's Nutrition and Physical Activity Survey, 0.2% of children (aged 2-16 years) reported consumption of cooked poultry pâtés and livers (DOHA 2008).

Key risk factors:

Salmonella spp. are often associated with live poultry and raw poultry meat. Inadequate cooking increases the probability of salmonellosis from consuming chicken, as identified in previous work by FSANZ (2005). Cross-contamination can occur after cooking. Storage temperatures above 7°C support the growth of *Salmonella* spp. (ICMSF 1996).

Risk mitigation:

Adequate cooking will inactivate *Salmonella* spp. For example, 66°C for 5 minutes or equivalent will achieve a greater than 7 log₁₀ reduction in *Salmonella* spp. in chicken and turkey products (with 12% fat) (FSIS 2005). Good hygienic practices in food manufacturing and food handling minimise *Salmonella* spp. contamination of food.

In Australia Division 3 of [Standard 4.2.3 of the Australia New Zealand Food Standards Code](#) (the Code) states that RTE meat (includes pâté) must be produced under a food safety management system which identifies, evaluates and controls food safety hazards. [Standard 1.6.1 of the Code](#) has a microbiological limit for packaged heat treated meat paste and packaged heat treated pâté for *Salmonella* spp. of n=5, c=0, m=0 per 25g.

Compliance history:

The imported food compliance data sourced from the Imported Food Inspection Scheme of the Australian Department of Agriculture for January 2007 – June 2013 showed that of the 120 *Salmonella* spp. tests applied to poultry pâté and liver there were no fails.

There have been six notifications on the European Commission's Rapid Alert System for Food and Feed (RASFF) for *Salmonella* spp. in frozen chicken livers from Brazil and Hungary during the period January 2007 – June 2013; however it was not stated if these products were cooked or uncooked.

There have been no food recalls in Australia due to the presence of *Salmonella* spp. in imported or domestically produced poultry pâté and livers from January 2007 – June 2013.

Surveillance information:

Salmonellosis is one of the most commonly reported enteric illnesses worldwide, and the second most frequently reported cause of enteric illness in Australia. It is a notifiable disease in all Australian states and territories with a notification rate in 2012 of 49.8 cases per 100,000 population (11,273 cases). The previous five year mean was 46.9 cases per 100,000 population per year (ranging from 38.6 – 54.2 cases per 100,000 population per year) (FSANZ 2013).

Illness associated with consumption of RTE cooked poultry pâté and livers contaminated with *Salmonella* spp.

There are limited reports of *Salmonella* outbreaks associated with RTE cooked poultry pâté and livers.

- Outbreak in the United Kingdom in 1984, >250 cases of illness linked to consumption of imported French pâté. *Salmonella* Gold-coast was isolated from patients and pâté samples. It was not stated if it was RTE cooked poultry pâté that was implicated (Threlfall et al. 1986)
- There have been several outbreaks, such as those described by Wensley and Coole (2013) and Layton et al. (1997), involving consumption of RTE cooked pâté incorrectly prepared on-site at food

businesses due to food handling deficiencies

Prevalence of *Salmonella* spp. in RTE cooked poultry pâté and livers

Data on the prevalence of *Salmonella* spp. in RTE cooked pâté and livers is limited.

- Survey in the United Kingdom in 2007, *Salmonella* spp. were not detected in meat pâté samples at retail (n=1,535) (FSA 2011)
- Survey in the United States from 1990 – 1999, *Salmonella* spp. was isolated in 0.05% of food classified as RTE meat, poultry salads, spreads and pâté (n=4,204) although the proportion of RTE cooked poultry pâté is unknown (Levine et al. 2001)

Other relevant standards or guidelines

- [FSANZ guidelines for the microbiological examination of ready-to-eat food](#) deem food to be satisfactory if no *Salmonella* spp. are detected in 25g. Food is deemed potentially hazardous if any *Salmonella* spp. are detected (FSANZ 2001)
- Codex general principles of food hygiene *CAC/RCP 1 – 1969* follows the food chain from primary production through to final consumption, highlighting the key hygiene controls at each stage (Codex 2003)
- Codex code of hygienic practice for meat *CAC/RCP 58-2005* covers additional hygienic provisions for raw meat, meat preparations and manufactured meat from the time of live animal production up to the point of retail sale (Codex 2005)

Approach by overseas countries

Many countries, such as the European Union, the United States and Canada, have HACCP-based regulatory measures in place for poultry products.

Other considerations

Quarantine restrictions apply to products under this commodity classification and include specific time and temperature requirements which would be sufficient to inactivate *Salmonella* spp. Refer to the [ICON database](#).

This risk statement was compiled by FSANZ in: August 2014

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