

**Imported food risk statement**  
**Ready-to-eat cooked poultry pâté and poultry livers and *Listeria monocytogenes***

**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:** *Listeria monocytogenes*

Recommendation and rationale
<p>Is <i>L. monocytogenes</i> in RTE cooked poultry pâté and liver a medium or high risk to public health:</p> <p><input checked="" type="checkbox"/> Yes</p> <p><input type="checkbox"/> No</p> <p><input type="checkbox"/> Uncertain, further scientific assessment required</p> <p><b>Rationale:</b></p> <ul style="list-style-type: none"> <li>• Human illness has been associated with RTE cooked poultry liver and pâté contaminated with <i>L. monocytogenes</i>. For susceptible populations, infection with <i>L. monocytogenes</i> can have severe consequences</li> <li>• Compliance data in Australia and internationally have shown detections of <i>L. monocytogenes</i> in poultry pâté and livers</li> <li>• <i>L. monocytogenes</i> contamination can occur after heat treatment and <i>L. monocytogenes</i> is able to grow during refrigerated storage. This commodity is able to support the growth of <i>L. monocytogenes</i> during the shelf-life of the product</li> </ul>

General description
<p><b>Nature of the microorganism:</b></p> <p><i>L. monocytogenes</i> is a Gram-positive, non-spore forming rod-shaped bacterium that can grow in both aerobic and anaerobic conditions. It is found throughout the environment and has been isolated from domestic and wild animals, birds, soil, vegetation, fodder and wet areas of food processing environments (FSANZ 2013).</p> <p>A distinguishing feature of <i>L. monocytogenes</i> is its ability to grow at refrigeration temperatures. Growth can occur at temperatures between 1.5 – 45.0°C, pH of 4.0 – 9.6 and a minimum water activity of 0.90 when other conditions are near optimum. Temperatures above 50°C are lethal to <i>L. monocytogenes</i>, however, it is able to survive frozen storage at -18°C (ICMSF 1996; FSANZ 2013).</p>
<p><b>Adverse health effects:</b></p> <p>For susceptible populations <i>L. monocytogenes</i> is a severe hazard as it can cause life threatening illness (ICMSF 2002). People at risk of invasive listeriosis include pregnant women and their foetuses, newborn babies, the elderly and immunocompromised individuals (such as cancer, transplant and HIV/AIDS patients). Less frequently reported, but also at a greater risk, are patients with diabetes, asthma, cirrhosis and ulcerative colitis (FSANZ 2013).</p> <p>In pregnant women invasive listeriosis can cause spontaneous abortion, stillbirth or neonatal infection. Influenza-like symptoms, fever, and gastrointestinal symptoms can also occur in the mother. In immunocompromised individuals and the elderly invasive listeriosis can cause potentially fatal bacterial meningitis with symptoms of fever, malaise, ataxia and altered mental status. The onset of illness of invasive listeriosis generally ranges from 3 days to 3 months after infection. Invasive listeriosis has a fatality rate of 15 – 30% (FDA 2012; FSANZ 2013).</p> <p>Nearly all cases of listeriosis in susceptible people result from the consumption of high numbers of the pathogen (Chen et al. 2003; FAO/WHO 2004). However, some foods support the growth of <i>L. monocytogenes</i>,</p>

FSANZ provides risk assessment advice to the Department of Agriculture on the level of public health risk associated with certain foods. For more information on how food is regulated in Australia refer to the [FSANZ website](#) or for information on how imported food is managed refer to the [Department of Agriculture website](#).

enabling high levels of *L. monocytogenes* to be achieved that may lead to illness.

Exposure to *L. monocytogenes* has minimal impact on the general healthy population. If illness does occur it is often mild and may be mistaken for a viral infection or flu (FSANZ 2012).

**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:**

*L. monocytogenes* has been identified as a concern for RTE poultry meat products in previous work performed by FSANZ (2005). Cooked poultry products have received a listericidal treatment; however, re-contamination can occur after this processing step as *L. monocytogenes* is an ubiquitous organism and can become established in processing environments. The inherent characteristics of this commodity allow the growth of *L. monocytogenes*, even when stored at <4°C.

**Risk mitigation:**

Good hygienic practices in food manufacturing and food handling minimise *L. monocytogenes* contamination of food. Control measures that prevent the growth of high levels of *L. monocytogenes* in the food are expected to have the greatest impact on reducing rates of listeriosis, as nearly all cases of listeriosis result from the consumption of high numbers of the pathogen.

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](#) contains limits for *L. monocytogenes* based on whether growth can occur or not:

- For RTE food in which growth of *L. monocytogenes* will not occur n=5, m=10<sup>2</sup> cfu/g
- For RTE food in which growth of *L. monocytogenes* can occur n = 5, m=not detected in 25g

Public information for vulnerable populations to avoid consumption of RTE food that supports the growth of *L. monocytogenes* is available on various government websites [including FSANZ's website](#).

**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 126 *L. monocytogenes* tests applied to poultry pâté and livers there was one fail, a 0.8% failure rate. The failed sample was duck liver imported from France.

There have been three notifications on the European Commission's Rapid Alert System for Food and Feed (RASFF) for *L. monocytogenes* in chicken liver pâté and goose liver spread from France and duck liver mousse from Belgium during the period from January 2007 – June 2013. It was not stated if these products were cooked or uncooked. There were an additional eight notifications for *L. monocytogenes* in pâté and liver spread from France and Belgium, however, it was not stated if any of these were cooked poultry products.

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

**Surveillance information:**

Listeriosis is a notifiable disease in all Australian states and territories with a notification rate in 2012 of 0.4 cases per 100,000 population (93 cases). The previous five year mean was 0.3 cases per 100,000 population per year (ranging from 0.2 – 0.4 cases per 100,000 population per year) (FSANZ 2013).

### **Illness associated with consumption of RTE cooked poultry pâté and liver contaminated with *L. monocytogenes***

There are a number of reported listeriosis outbreaks associated with consumption of pâté (it was not stated if RTE cooked poultry pâté was implicated). Examples are listed below:

- Outbreak in the United States in 1999, 11 cases from consumption of pâté (Cartwright et al. 2013)
- Outbreak in Australia (WA) in 1990, 11 perinatal cases and six fatalities associated with the consumption of a particular brand of pâté. *L. monocytogenes* was isolated from patients and pâté samples (Watson and Ott 1990)
- A case of listeriosis in Wales in 1989 from consumption of pâté imported from Belgium (Cumber et al. 1991)

### **Prevalence of *L. monocytogenes* in RTE cooked poultry pâté and liver**

Surveys from the 1980's and 1990's isolated *L. monocytogenes* from 9 – 35% of pâté samples (Morris and Ribeiro 1991; Gilbert et al. 1993). More recent surveys from 2000 onwards have isolated *L. monocytogenes* from 0.06 – 5% of pâté samples (Dominguez et al. 2001; FSA 2011). Examples of more recent surveys are listed below:

- Survey in Wales in 2008 – 2009, *L. monocytogenes* was isolated from 0.24% of pâté samples at retail (n=411) although the proportion of RTE cooked poultry pâté is unknown, the level of contamination was <100 CFU/g (Meldrum et al. 2010)
- Survey in the United Kingdom in 2007, *L. monocytogenes* was isolated from 0.06% of meat pâté samples at retail (n=1,535) although the proportion of RTE cooked poultry pâté is unknown, the level of contamination was <100 CFU/g (FSA 2011)
- Survey in the United Kingdom in 2002, *L. monocytogenes* was isolated from 2% of poultry pâté samples from catering and retail premises (n=308), the level of contamination was <20 CFU/g (Elson et al. 2004)
- Survey in Spain in 2000, *L. monocytogenes* was isolated from 5.4% of pâté samples at retail (n=182) although the proportion of RTE cooked poultry pâté is unknown. One sample had a *L. monocytogenes* level between 100 – 1000 CFU/g, the level of contamination of the remaining samples was <100 CFU/g (Dominguez et al. 2001)

### **Other relevant standards or guidelines**

- 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)
- Codex guidelines on the application of general principles of food hygiene to the control of *L. monocytogenes* in foods *CAC/GL 61 – 2007* (Codex 2009) states:
  - For RTE foods in which growth of *L. monocytogenes* can occur the microbiological criterion for *L. monocytogenes* is n=5, c=0, m=absence in 25g
  - For RTE foods in which growth of *L. monocytogenes* cannot occur the microbiological criterion for *L. monocytogenes* is n=5, c=0, m=100 CFU/g

### **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. Refer to the [ICON database](#).

**This risk statement was compiled by FSANZ in:** August 2014

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