

UK-wide microbiological survey of pre-packed ready-to-eat sliced meats at retail sale in small-to-medium enterprises (SMEs)

Area of research interest: [Foodborne pathogens](#)

Study duration: 2012-04-01

Planned completion: 1 March 2013

Project code: FS241042

Conducted by: Agri-Food and Biosciences Institute and Hutchinson Scientific

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Background

Listeria monocytogenes has been identified by our organisation as one of the key pathogens for priority action, because infections with this organism (listeriosis) are associated with a high rate of mortality. It is therefore important that sources of exposure to this organism are pinpointed and factors contributing to infections identified. The types of food in which listeria can be found are diverse and there are several key foods which have been implicated in the transmission of listeriosis, including cooked sliced meats.

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Research Approach

This survey aimed to determine the prevalence and levels of contamination in ready-to-eat cooked and cured sliced meats and fermented and cured meat products at retail sale in small and medium-sized enterprises (SMEs).

Previous surveys of retail cold sliced meats with particular reference to *L. monocytogenes* have been based on market share with the majority of samples being collected from large retailers. A Health Protection Agency (now known as Public Health England) study of human listeriosis in England found that high risk groups, such as the elderly, were more likely to buy foods from smaller convenience stores than the general population therefore this survey focused on SME retailers.

In total, 1,046 samples were tested for *L. monocytogenes* and other *Listeria* spp. (detection and enumeration). Samples were also tested for the hygiene indicator organisms *Escherichia coli* and enterobacteriaceae (detection and enumeration), physical and chemical characteristics such as salt content, water activity and pH. The storage temperatures in the SMEs at the time of sampling were recorded, as will a range of factors such as price, retailer and store address, product type, use-by date and storage instructions.

A statistical comparison with earlier studies was carried with findings summarised in a final report on completion of the survey.

This survey is intended to be a focused survey to determine prevalence of contamination in different ready-to-eat sliced meats to provide an indication of potential underlying risk factors associated with these products on sale in SMEs. It is not intended that this survey will investigate

seasonality.

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Results

The results:

- *Listeria monocytogenes* was detected in 3.8% of samples and *Listeria* spp. were detected in 7% of samples.
- Enterobacteriaceae were enumerated from 36.2% of samples and the mean count (log₁₀ cfu/g) was 2.96 ± 1.47.
- *E.coli* were enumerated from five samples (0.48%).
- The mean temperature of the samples was 6.8°C, with 71.3% of samples above the industry guideline of 5°C and 32.7% being stored above 8°C.
- Samples came from a diverse range of processors and chemical analyses indicated conditions appropriate for the growth of *Listeria* species.
- *Listeria* was isolated from the products of 27% of the producers sampled. Products from 23 processors showed a mean *Listeria* prevalence of 25%, indicating significant hygienic shortcomings in the production processes.

The survey found that most of the meat products were stored at temperatures higher than the recommended industry guidelines, and this, combined with the relatively high prevalence of *Listeria monocytogenes*, in comparison with our previous survey, could put consumers at risk. There is a need to inform and train retail SME staff about appropriate maintenance and control of refrigerated display cabinets.

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Research reports

England, Northern Ireland and Wales

PDF

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