A Review of Consumer Food Safety Research to Identify Domestic Risk Factors Associated with Listeriosis.

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Introduction

Reported incidence of listeriosis has more than doubled in Europe1, with two-thirds of reported cases associated with adults aged 60 years and UK incidence among older adults reported to have tripled2.

Majority of listeriosis incidence are predominantly associated with ready-to-eat (RTE) foods3 and are reported to be largely sporadic, which may be associated with unsafe food handling and storage practices in consumers’ domestic kitchens4. Consequently, recommended domestic practices to reduce risks associated with Listeria monocytogenes include5:

- Adhere to ‘use-by’ dates on RTE foods
- Ensure safe refrigeration temperatures
- Consumer RTE foods within two days of opening modified atmosphere packaging

However, data relating to older adults food safety practices are lacking and is required to ascertain factors that may contribute to the risk of listeriosis in the domestic kitchens of older adults6.

Cumulatively, two hundred studies conducted over 35 years from 28 countries were reviewed for inclusion of recommended practices to reduce the risks associated with listeriosis in the home. As illustrated in Figure 1; overall, only 43% of studies assessed consumer cognitive or behavioural data associated with listeriosis risk factors, of which 27% assessed refrigeration practices, 23% determined storage length of opened RTE foods and 21% ascertain adherence to ‘use-by’ dates.

![Figure 1: Inclusion of recommended practices to reduce the risk associated with listeriosis in consumer food safety studies (n=200)](image)

Research Aim

The aim of this study was to review consumer food safety studies to consolidate and cumulatively determine consumer cognitive and behavioural risk factors that may be associated with listeriosis in the home, and in particular, those that are implemented by older adult consumers (aged 60+ years).

Methods

A systematic review of literature was conducted to obtain consumer food safety data which included the collation of published articles, reports and conference presentations (n=200). Primary research papers were reviewed and analysed using a content analysis approach. Findings were summarised according to assessment of knowledge, attitudes, self-reported practices, and/or actual behaviours of the recommended food safety practices required to reduce the risk of listeriosis

Selected sources were stored using EndNote X7 reference manager. Findings relating to the aims of the review were collated in a designed Microsoft Access 2007 database. Analysis was conducted using Microsoft Office Excel 2007.

Results

The majority of studies utilised survey based data collection methods (questionnaires/interviews), consequently, findings on listeriosis-risk factors were based on self-reported practices (33%) knowledge (20%), attitudes (7%) and actual behaviour (13%)

Even though older adults were included in 33% of studies, only 7% presented older adults food safety data.

![Table 1: Cognitive and behavioural comparison of knowledge, attitudes, self-reported practices and actual behaviours risk factors](image)

<table>
<thead>
<tr>
<th>Knowledge</th>
<th>Attitudes</th>
<th>Self-reported practices</th>
<th>Actual behaviour</th>
</tr>
</thead>
<tbody>
<tr>
<td>49 – 62% aware ‘use-by’ date was the best indicator of food safety</td>
<td>73 – 75% believed avoiding foods with expired dates to be important</td>
<td>18 – 56% reported to ‘never’ eat food beyond its expiry date</td>
<td>43 – 89% had foods with expired ‘use-by’ dates in refrigerators</td>
</tr>
<tr>
<td>Refrigeration temperatures</td>
<td>44 – 93% unaware of recommended refrigeration temperatures</td>
<td>97% believed ensuring correct refrigerator temperature important</td>
<td>0 – 24% reportedly to own a refrigerator thermometer</td>
</tr>
<tr>
<td>Storage of opened RTE foods</td>
<td>96% aware that improper storage of food may represent a hazard</td>
<td>No data available</td>
<td>No data available</td>
</tr>
<tr>
<td>Although many consumers reported awareness of ‘use-by’ dates and indicated positive attitudes towards their importance, self-reported and actual behaviour data suggest that consumers frequently fail to adhere to ‘use-by’ dates.</td>
<td>A positive attitude towards the importance of refrigeration temperatures did not correspond with knowledge of safe temperature, self-reported practices of checking refrigerator temperature. Furthermore, temperatures recorded in domestic refrigerators exceeded recommended temperatures.</td>
<td>47 – 81% refrigerators exceeded recommended temperatures.</td>
<td>73% of consumers reported storing RTE foods within two days of opening without refrigeration.</td>
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Although only 7% of studies presented older adults food safety data; findings indicate that larger proportions of older adult consumers may deviate from recommended practices to control listeriosis in the domestic kitchen.

Conclusion

- Data suggest older adults may implement greater food safety malpractices that increase risks of listeriosis, however such cognitive and behavioural data detailing older adults listeriosis risk factors are lacking
- In-depth research is required to determine older adults’ food safety attitudes and actual behaviour in conjunction with knowledge and self-reported of practices linked to increased risks of listeriosis.
- Such data is required to develop risk communication strategies to improve the food safety practices of older adult consumers in the home.

References