

A Review of UK Food Safety Information Provision for Chemotherapy Patients

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Introduction

Patients receiving chemotherapy have an increased risk of foodborne illness due to immunosuppression¹, indeed the risk of listeriosis is reportedly five-times greater to chemotherapy patients than the general population². Consequently, it is essential for patients and/or family-caregivers to ensure the safety of food at home³. However, it is suggested that limited food safety information is available to chemotherapy patients and/or family-caregivers in the UK⁴.

Aim

The aim of this study was to identify and review food-related information available to chemotherapy patients/carers in the UK to assess the inclusion of food safety information.

Methods

Food-related information available to chemotherapy patients/carers in the UK were collected from health care providers including UK NHS trusts and cancer charities. Sources were reviewed and analysed using a content analysis approach to assess inclusion of food safety information.

A Microsoft Access 2013 database (Microsoft, Redmond, WA USA) was designed, developed and utilised to store and analyse collated data from the food-related information resources.

Findings were summarized according to key topics critical to food safety and listeriosis, (e.g. refrigeration practices, cross-contamination, consumption of at-risk food products, cooking and cleaning). Analysis was conducted using Microsoft Office Excel 2007.

Results

Overall, food-related information sources available to chemotherapy patients were obtained from 42 of 141 UK NHS chemotherapy providers and three UK cancer charities. Although 64% explained why patients were at an increased risk of developing infection during treatment, few (20% / n=9) highlighted the importance of food safety to prevent infection, the majority of which (78%) referred to neutropenic restrictions. It was determined that 67% of sources included one or more reference to food safety practices (range: 1 – 43, mean: 13, possible maximum: 57)

Refrigeration practices

The inclusion of information regarding safe refrigeration practices was lacking. Information detailing recommended refrigeration temperatures was included in 22%. Practices to prevent unsafe temperatures were less frequently included (11% stated 'do not refrigerate hot food'). Fewer resources referred to safe freezing practices, 18% stated the recommended freezing temperature to be below -18°C, 18% recommended thawing frozen food in the refrigerator and 11% included information on thawing food in the microwave if cooking immediately.

Eating out

Information regarding ensuring food safety when eating out was included in 27% of the resources. The majority of which (22%) recommended avoiding open foods such as buffets and salad bars. Fewer resources recommended checking that food products were at appropriate temperatures to indicate freshness or select food establishments according to the food hygiene rating scheme (Figure 2).

Practice	Percentage
Avoid salad bars and buffets	22%
Choose reputable establishments	20%
Avoid market stalls and street vendors	15%
Ensure piping hot and thoroughly cooked	15%
Choose freshly prepared food	10%
Select a good hygiene rating	6%
Ensure chilled foods feel cold	4%

Figure 2 Inclusion of recommendations to ensure food safety when eating out (n=45)

Cooking practices

Recommendations to ensure thorough cooking were frequently included, as illustrated in Figure 3. Although 42% recommended the avoidance of raw meat, poultry and/or fish and 33% stated to cook all food until piping hot, only 9% recommended the use of a thermometer to achieve a core temperature of 75°C.

Practice	Percentage
Preheat oven	10%
Cook until meat juices run clear	14%
Ensure core temperature ≥75°C	9%
Follow cooking instructions	18%
Don't reheat food	10%
Cook eggs until firm	10%
Cook all food thoroughly until piping hot	30%

Figure 3 inclusion of information on thorough cooking (n=45)

Hand hygiene

Hand hygiene was the most frequently recommended practice. Washing hands before preparing food was cited in 49% of reviewed resources. Details regarding critical hand washing occasions such as after handling raw meat/poultry were lacking (see Figure 1).

Occasion	Percentage
Before food preparation	49%
After handling raw meat/poultry	29%
After using toilet	29%
After touching pets	22%
Before eating	18%
After sneezing	10%
After handling dirty laundry	4%
After handling rubbish	4%

Figure 1 Inclusion of information on hand washing occasion (n=45)

Hand hygiene recommendations were insufficient:

- 20% recommended use of soap and warm/hot water
- 16% recommended a clean hand towel should be used

Cleaning

The most frequently stated practices in relation to cleaning was to 'wash fruits and vegetables before eating', included in 29% of reviewed resources. Information on cleaning kitchen surfaces was included in 18%, only 9% recommended that that kitchen equipment, crockery or cutlery should be allowed to air dry instead of using a towel.

Cross-contamination

Recommendations to reduce the risks associated with microbial cross-contamination in the domestic kitchen were included in 38% of the resources. As indicated in Figure 4, the most frequently stated practices were to store RTE foods above raw meat/poultry in the refrigerator (29%) and to use separate chopping boards for preparing raw meat/poultry and RTE foods (27%).

Practice	Percentage
Store RTE food above raw meat/poultry in refrigerator	29%
Use separate or adequately clean chopping boards and knives between use for raw meat/poultry and RTE	27%
Replace cloths or clean regularly	15%
Avoid contact between raw and RTE food	10%
Cover raw food in fridge	10%
Disinfect worktops after raw meat/poultry	10%

Figure 4 inclusion of information to reduce cross-contamination risks

Risk associated foods

Recommendations regarding risk-associated food products to be avoided were included in 44% of resources. The food products most frequently recommended to be avoided were raw/undercooked eggs (42%), raw/undercooked meat or poultry (42%) and unpasteurised dairy products (38%). Only half of those that included risk-associated food products listed safer alternative food products (22%).

Listeriosis risk reducing behaviours

In addition to recommending safe refrigeration temperatures (included in 22% of resources) to reduce the risks associated with listeriosis. A third (33%) recommended following 'use-by' dates. However 13% listed 'use-by' dates with 'best before end' dates, this may cause confusion for consumers. Only 7% recommended that RTE foods should be consumed within two days of opening to ensure food safety and only 4% included information regarding dealing with leftover foods.

Food Prepared by others

Although 13% of resources suggested that patients should allow 'others' to prepare food for them during chemotherapy treatment if energy is low. However only 4% incorporated the importance of food safety for 'others' when preparing food.

Potential unsafe recommendations

Recommendations or information deemed to be potentially 'unsafe' were included in 11% of resources which included:

"Eat room temperature foods." (Resource 031). **"Food at room temperature may be more enjoyable than hot food, and can be as nutritious."** (Resource 035)

Food products should not be subjected to potentially unsafe temperatures for prolonged periods of time. Such food products out of refrigeration for two hours or longer should be disposed of.



Although some information attempted to ensure food safety, messages were inadequate: **"Shellfish and steamed fish must be cooked for at least seven minutes. Meat should be too hot to touch."** (Resource 029)

Giving a cooking time without portion size or cooking temperature is inadequate and the external temperature of food will not indicate core temperature. The use of a meat thermometer is the best way check cooking efficacy. Such recommendations are not classed as risk-reducing behaviours.

Conclusions

Findings from this study have determined that:

- Although information is available, access to specific food safety information for chemotherapy patients and caregivers is limited
- Considerable gaps exist and information provided varies greatly between sources
- The most comprehensive sources of food safety information were tailored for neutropenic patients
- Advice relating to hand cleaning was most frequently included
- Food safety for 'others', practices to reduce the risk of listeriosis and safer alternatives to risk associated foods were lacking
- Potentially 'unsafe' messages that may increase the risks associated with foodborne disease were found in some resources

Completion of the study has determined there is a need to establish if such sources are received, understood, trusted and utilised by chemotherapy patients and their family caregivers. There is a need to identify the potential impact of such sources on patients and carers during treatment along with preferred sources, this will allow for the development of targeted food safety information in the future to reduce the risk associated with foodborne illness such as listeriosis during chemotherapy treatment.

References

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