A Review of UK Food Safety Information Provision for Chemotherapy Patients
Ellen W. Evans* & Elizabeth C. Redmond
ZERO2FIVE® Food Industry Centre, Cardiff Metropolitan University, United Kingdom
*Corresponding author: elevans@cardiffmet.ac.uk

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

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 non-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 foods). 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).

Hand hygiene
Hand hygiene was the most frequently recommended practice. Washing hands before preparing food was cited in 68% of reviewed resources. Details regarding critical hand washing occasions such as after handling raw meat/poultry were lacking (see Figure 3).

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.

Potential unsafe recommendations
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

Conclusion
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 thermometer of food will not indicate core temperature. The use of a meat thermometer is the best way check cooking efficacy. Such recommendations are not beneficial for reducing severe illness.

References
1. Sarkis, C. Food and all the foodborne pathogens: what is the greatest risk? International Journal of Food Microbiology. 1996; 30: 113-123

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