Development of a consumer oriented food safety education strategy for chemotherapy patients and family-caregivers

Ellen W. Evans*, Adrian C. Peters, Simon Dawson & Elizabeth C. Redmond
Cardiff School of Health Sciences, Cardiff Metropolitan University, Wales, UK.
*Corresponding author: elavens@cardiffmet.ac.uk

Research Background & Aim
Chemotherapy patients have an increased risk of foodborne illnesses due to immunosuppression1. Indeed, cancer patients are reported to have a five-fold increased risk for the development of listeriosis than other contemporary patients. Therefore, to minimise the risk of foodborne illness it is important that cancer patients consume foods prepared and stored at home according to recommendations and avoid risk associated food products to ensure food safety6. However, it is suggested that limited food safety information is available to chemotherapy patients and family-caregivers in the UK and data on their food safety knowledge, practices and perceptions during chemotherapy are particularly lacking9. The aim of the project was to design, develop and evaluate a targeted food safety intervention strategy using a consumer oriented research approach.

Research Approach

Review of food safety information for chemotherapy patients
Method: Food related information was obtained from 30% of NHS chemotherapy providers (n=241) and three UK cancer charities. Resources were reviewed for the inclusion of food safety information using a content analysis approach. The majority (64%) of resources referred to the increased risk of infection during chemotherapy and 67% included one or more food safety practice (range: 1–43, mean: 13, possible maximum: 77). Hand hygiene was the most frequently included aspect of food safety. Although 49% of sources, referred to washing hands before preparing food, only 20% recommended the use of soap and hot/water warm.

Less than half (44%) included risk-associated foods to be avoided raw/uncooked eggs, meat/poultry and only 22% included safer alternatives. Reference to listeriosis risk reducing behaviours were lacking:

• 7% recommended that ready-to-eat foods should be consumed within two days of opening

• 22% included recommended refrigeration temperature (≤5.0˚C)

• 33% referred to adhesion to 'use by' dates

Cumulatively, considerable gaps exist and information varied greatly between sources.

Food related experiences of patients and family-caregivers
Method: In-depth interviews (n=15) were conducted to establish the food related experiences of patients and caregivers during treatment.

During the interviews, food provision was determined to be an important role for caregivers:

“Food being able to help her suffering, her pain, and there was nothing I could do, it was a very strange feeling. The food the customer was, (found out where the kitchen was) not only where the kitchen was, what happened in there I grew into, and found I thoroughly enjoyed it. I made me feel less useless, valued then. An active role with her attitude at home, her (husband) left in the profession. To provide food is a mission, it gave me a role.”

Although many were aware of the increased risk of infection during chemotherapy and the need for infection control, the perceived risk of foodborne illness was often underestimated:

“Tell me there was increased risk of picking up infections so I was especially careful around hand washing after being in public space, but I can’t think particularly about a risk of food poisoning.”

The majority (61%) reported being more concerned about diet and nutrition than food safety during treatment. Furthermore, significantly (p=0.05) patient and family-caregiver perceptions [67%–69%] of receiving information on healthy eating and keeping active than food safety (49%) during chemotherapy (Figure 3).

Evaluation of the food safety intervention
Method: A series of food safety interventions were produced. An evaluation of the resources with patients and family-caregivers (n=17) was conducted.

Food safety interventions consisted of:

• A colour A5 booklet

• An interactive website

• Reminder fridge magnet

• Refrigerator thermometer

The evaluation determined the intervention to be acceptable and beneficial:

• 100% believed the intervention increased their food safety knowledge

• 100% believed the intervention would inform patients and caregivers of the risks associated with food poisoning and aid how to reduce associated risks.

• 95% believed the intervention would reduce food poisoning among chemotherapy patients

The evaluation of the resources with patients and family-caregivers (n=17) was conducted.

Potentially effective of the health related information received during chemotherapy (n=130)
Method: A pre and post intervention test-retest self-complete questionnaire with patients and family-caregivers (n=15) was used to determine the potential effectiveness of the intervention.

Overall, attitudinal scores towards food safety practices were statistically more positive with large effect (f=2.580, p<0.01, r=0.67) post intervention (Mean=82) than pre-intervention (Mean=59).

Conclusions
Cumulatively, this study has established that:

• Food safety information for patients and family-caregivers is lacking and variable between sources.

• The risk of food poisoning was often underestimated by patients and family-caregivers.

• Although many patients and caregivers indicated food safety awareness, malpractices were reported.

• Food safety needs to be engaging and needs to enable a sense of ‘control’.

Consequently, using a data driven audience oriented approach, this study has designed, developed and evaluated a tailored food safety strategy that may help to increase the implementation of risk-reducing food safety behaviours. The strategy was determined to be acceptable, beneficial and effective among patients and family-caregivers which may assist in reducing the risks associated with foodborne illness during chemotherapy treatment.

References & Acknowledgements
6. The food safety research team wish to acknowledge the personal experiences of Prof. Louise Fielding (LOCO–2013) who recognized the need for food safety information during chemotherapy treatment.
7. Ethic approval was granted by the Wye School of Health Sciences Research and Ethics Committee. Project reference number: (WyeSREC-2014/01)
8. This project received funding from a Tenovus Cancer Care Innovation Grant (TIG2014-30)
9. Hard enough to decide what’s good, what’s bad, when they don’t tell you why it’s bad, you can’t rely on it.
10. “It’s ok being told what’s good, what’s bad, good, what’s bad, what’s bad, what’s good, only 20%

4. The majority (61%) reported being more concerned about diet and nutrition than food safety during treatment. Furthermore, significantly (p=0.05) patient and family-caregiver perceptions [67%–69%] of receiving information on healthy eating and keeping active than food safety (49%) during chemotherapy (Figure 3).