The Use of a Consumer-Oriented Approach to Design and Develop Food Safety Interventions for Chemotherapy Patients and Family Caregivers

Ellen W. Evans* Adrian C. Peters, Simon Dawson & Elizabeth C. Redmond

ZERO2FIVE® Food Industry Centre, Cardiff School of Health Sciences, Cardiff Metropolitan University, Wales, United Kingdom.

*Corresponding author: elevans@cardiffmet.ac.uk

Introduction
Chemotherapy patients have an increased risk of foodborne illness due to immunosuppression,1,2 and cancer patients are reported to have a five-fold increased risk for development of diarrhoea.1,2 Therefore, to minimise the risk of foodborne illness it is important that cancer patients consume safe foods prepared and cooked at home according to food safety recommendations and avoid risk associated food products.1

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 lacking.1,2

Purpose
The aim of the project was to design, develop and evaluate a targeted food safety intervention strategy using a consumer-oriented research approach.

Methods
The project included qualitative and quantitative research methods and consisted of the following phases:

Phase 1: Food related information was obtained from 30% of Nhs chemotherapy providers (n=162) and three local cancer charities. Resources were reviewed for the inclusion of food safety information using a content analysis approach.

Phase 2: In-depth interviews (n=15) were conducted to establish the food related experiences of patients and family caregivers during treatment.

Phase 3: Self-complete questionnaires (paper-based and online) were completed (n=152) by chemotherapy patients (n=50) and family caregivers (n=102) to determine the knowledge, attitudes and self-reported practices.

Phase 4: Focus groups were conducted with chemotherapy patients and family caregivers (n=50) to elicit information regarding preferred formats for future food safety information and establish the target audience’s perceived need for food safety education to inform Phase 5.

Phase 5: A series of food safety interventions tailored specifically for targeting patients and family caregivers were produced to promote safe food handling/storage behaviours. An evaluation of the intervention with patients and family caregivers (n=17) was conducted.

Phase 6: A pre and post consumer focused complete questionnaire with patients and family caregivers (n=35) was used to determine the acceptability and the potential effectiveness of the intervention on knowledge and attitudes.

Results
Phase 1: Review of food safety information for chemotherapy patients

During the interviews, food provision was determined to be an important role in providing patient comfort during chemotherapy.

Physical, mental and social changes were also determined to impact on food preferences and eating habits during treatment, which included anorexia, nausea, dysphagia, indigestion and depression.

Table 2. Pre and post intervention knowledge of key food safety practices (n=15). *Wilcoxon signed rank test cannot be performed as only one variable was generated.

<table>
<thead>
<tr>
<th>Practice</th>
<th>Preknowledge</th>
<th>Postknowledge</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hand washing before preparing food/ eating</td>
<td>100%</td>
<td>93%</td>
<td>&gt;0.05</td>
</tr>
<tr>
<td>Washing hands after preparing food/ eating</td>
<td>100%</td>
<td>93%</td>
<td>&gt;0.05</td>
</tr>
<tr>
<td>Using a meat thermometer</td>
<td>45%</td>
<td>93%</td>
<td>&gt;0.05</td>
</tr>
<tr>
<td>Recommended refrigeration temperature</td>
<td>73%</td>
<td>93%</td>
<td>&gt;0.05</td>
</tr>
</tbody>
</table>

Phase 2: Related experiences of patients and family caregivers

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.

The intervention was determined to be acceptable and beneficial. 66% believed the intervention increased their food safety knowledge, 33% believed the intervention would improve food safety practices and 66% believed the intervention would reduce food poisoning among chemotherapy patients.

The majority (91%) reported being highly concerned about diet and nutrition during chemotherapy and 65% did not own a refrigerator thermometer.

Phase 3: Food safety awareness of patients and family caregivers

The intervention was determined to be acceptable and beneficial. 66% believed the intervention increased their food safety knowledge, 33% believed the intervention would improve food safety practices and 66% believed the intervention would reduce food poisoning among chemotherapy patients.

Although many reported awareness of key food safety practices, self-reported practice varied greatly. For example, 73% did not own a refrigerator thermometer, 70% did not use a microwave oven, 74% did not use a meat thermometer and 72% failed to adhere to ‘use by’ dates.

Phase 4: Design of development of a food safety intervention

During the interviews, food provision was determined to be an important role in providing patient comfort during chemotherapy.

Phase 5: Evaluation of the food safety intervention

Phase 6: Potential effectiveness of the food safety intervention

Consequently, using a data driven audience orientated 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 majority (91%) reported being highly concerned about diet and nutrition during chemotherapy and 66% did not own a refrigerator thermometer.

Phase 6: Potential effectiveness of the food safety intervention

Consequently, using a data driven audience orientated 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.

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References