

**Title:** Parental Intentions to Wean Following Advances in Primary Prevention of Food Allergy

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To the Editor,

Food allergy affects 5-6% of Irish children<sup>1</sup>. Recent studies such as LEAP<sup>2</sup> and EAT<sup>3</sup> reported that regular consumption of common allergy associated foods early in the weaning period resulted in a protective effect on the development of food allergy<sup>2,3</sup>.

Current guidelines recommend that solid foods should be introduced into the infant diet around 6 months of age, including the common allergenic foods, and these foods should be continued on a regular basis. For children at a higher risk of developing food allergy, the early introduction (from 4 months of age) of egg and peanut may be beneficial.<sup>4</sup>

On foot of this recent evidence, this study aimed to investigate Irish parental intentions concerning introduction of six common allergy associated foods; egg, fish, wheat, peanut, tree-nut and shellfish, and to explore factors that may influence parental decision-making concerning introduction of these foods.

In this nine week, prospective, questionnaire based, cross-sectional study, 260 parents on the post-natal unit of University Hospital Galway were invited to take part. Parents who were unable to partake due to an insufficient understanding of the English language or whose infant was in the Neonatal Intensive Care Unit were excluded.

The questionnaire (additional file 1) included four sections assessing: demographics, food allergy risk factors, parental food allergy knowledge, parental intention regarding introduction of allergenic foods, parental risk perception for their child and information source. Section three is based on the Chicago Food Allergy Research Survey<sup>5</sup> as a modified validated questionnaire while the other sections were developed based on styles in similar questionnaires relevant to our research. The questionnaire was piloted on a sample of the population and reviewed before the start of the study to maximise acceptability and minimise error.

The data from the study were collated and analysed using Statistical Package for Social Science (SPSS), Version 24. Knowledge scores were created by calculating the percentage of questions in section three that were correctly answered. Pearson's Chi Square and Fisher Exact ratios were used to explore associations between weaning practices and possible influencing factors.

In total, 200 parents completed the study (77%); 156 (78.4%) female, 180 (90.9%) Caucasian, 90 (45.3%) first time parents, and 169 (84.9%) with third level education. The mean food allergy knowledge score was 39.37% (SD, 14.2%).

Fifty-one (26.7%) infants had a first degree relative with food allergy or atopic disease. Of these, 28 (54.9%) parents considered their infant to be at low risk, 22 (43.1%) moderate risk and only 1 (2%) at high risk of developing food allergy. Only eight (4%) infants had two or more first degree relatives with allergic disease. Of these, four considered their baby to be at low risk, while the other four considered their child to be at moderate risk of developing food allergy.

Most parents intend on introducing egg (135, 69.2%), fish (127, 65.5%) and wheat (147, 76.6%) into their infant's diet at 6-12 months. However, most intend to wait until the infant is over 12 months to introduce peanut (141, 75.4%), tree-nut (143, 76.2%), and shellfish (154, 81.5%) (Table 1). Most parents intend to include egg (161, 84.3%), fish (140, 73.7%)

and wheat (154, 81.5%) regularly. However, the majority do not intend to include peanut (147, 79.5%), tree-nut (143, 76.9%) or shellfish (163, 87.1%) regularly (Table 2).

Some significant associations ( $p < 0.05$ ) between 'likeliness' to follow recommendations and allergy risk, parental education, knowledge, and experience were found but were inconsistent among the different food groups.

Influences on weaning practice included information from healthcare professionals, 38 (19%), infant development, 21 (10.5%) and infant interest, 18 (9.0%). The main information sources concerning weaning were the public health nurse, 142 (71.0%), the internet, 115 (57.8%) and family, 99 (49.7%) (Table 3).

This study demonstrates Irish parental intentions for introducing common allergy associated foods into their infant's diet during the weaning period. Parents are more likely to include egg, fish, and wheat correctly whilst are less likely to include peanut, tree-nut or shellfish. The study also provides an insight into the relatively low level of knowledge parents have regarding food allergy, the average score being 39%. Similar poor levels of knowledge were reported by Luke et al<sup>6</sup>. Children with two or more first degree relatives with allergic disease are at higher risk of developing food allergy whilst having one first degree relative with allergic disease moderately increases the infant's risk<sup>7</sup>. In our study, approximately half the parents whose infant is at an increased risk of developing a food allergy, either with one or two allergic relatives, failed to recognise this risk. Eczema is an additional significant risk factor for the development of food allergy notably, peanut and egg<sup>8</sup>.

According to the Health Belief Model<sup>9</sup>, parental awareness and literacy surrounding food allergy and risk is important in ensuring that children are introduced to common allergenic foods at the appropriate time in order to minimise the chance of developing food allergy. Therefore, education concerning food allergy prevention strategies is particularly important for parents of infants with early onset or severe eczema and those with two or more relatives with allergic disease.

Similar to the study published by Tey et al in 2014<sup>10</sup>, the majority of parents surveyed plan to introduce egg between 6 and 12 months, and to wait until the infant is over 12 months to introduce peanut. This study also found that parents were hesitant to include tree-nut and shellfish before 12 months. Similarly, parents do not intend to include these foods on a regular basis. From these results, it would appear that parents are not aware of the updated infant feeding guidelines or are unaware of the benefits of following them.

Tey et al<sup>10</sup> found a number of sociodemographic characteristics that influenced parental decisions about weaning. Parents with a higher socioeconomic status and those without a family history of allergic disease were more likely to introduce peanut and egg at the correct age. This study revealed similar results where education, food allergy knowledge, parental experience and family history of allergy had some associations with parental decisions, however the results were inconsistent, so further research is required.

Parental education concerning correct timing of introduction of the allergenic foods needs to be prioritised, particularly focusing on safely introducing peanut, tree-nut and shellfish. Parents rely on advice from healthcare professionals such as the public health nurse and general practitioner for weaning information. Therefore, it is our recommendation that education efforts to improve parental education should commence in the community setting, notably at the routine six-week infant check-up and vaccination visits.

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153 **viii) Tables:**

154 **Table 1. Age at which parents intend to introduce Allergenic Foods**

Food	Before 6 Months N (%)	6 - 12 Months N (%)	After 12 Months N (%)
Egg	12 (6.2)	135 (69.2)	48 (24.6)
Fish	8 (4.1)	127 (65.5)	59 (30.4)
Shellfish	1 (0.5)	34 (18)	154 (81.5)
Peanut	3 (1.6)	43 (23)	141 (75.4)
Tree nut	3 (1.6)	42 (22.3)	143 (76.1)
Wheat	12 (6.3)	147 (76.6)	33 (17.2)

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156 **Table 2. Frequency at which parents intend to include each food in infant's diet**

Food	Regularly N (%)	Not Regularly N (%)
Egg	161 (84.3)	30 (15.7)
Fish	140 (73.7)	50 (26.3)
Shellfish	24 (12.9)	163 (87.1)
Peanut	38 (20.5)	147 (79.5)
Tree nut	43 (23.1)	143 (76.9)
Wheat	154 (81.5)	35 (18.5)

157 *Note: regularly meaning every day or every week*

158 **Table 3. Weaning Information Source**

Source of Information	N (%)
Public Health Nurse	142 (71)
Internet	115 (57.8)
Family	99 (49.7)
Leaflets	94 (47.2)
GP	93 (46)
Books	89 (44.7)
Friends	86 (43.2)
Knowledge from Previous Child	65 (32.7)
Other Health Care Professional	14 (7)
Other	9 (4.5)

159 **x) Appendices:** Additional file 1: Questionnaire- this file contains the questionnaire which  
160 was used in the study.