

Prevalence of food allergy and weaning practices in a birth cohort of UK infants

Area of research interest: [Food hypersensitivity](#)

Study duration: 2005-08-01

Planned completion: 1 October 2009

Project code: T07046

Conducted by: University of Southampton

Background

There is currently a lack of reliable data on the actual, as opposed to reported, prevalence of food allergies in the UK, especially among children. Previous attempts to establish prevalence have not always been representative of the general population, have used different endpoints and diagnostic criteria, or have been based on adults rather than children. This makes them difficult to interpret and compare. There is therefore a real need for robust studies using validated methods and appropriate diagnostic criteria to establish the true prevalence of food allergies in UK children.

There is also a need to improve our understanding of the current weaning practices of mothers in the UK, and to understand what influence, if any, these weaning practices, and in particular the timing of introduction of allergenic foods (e.g. peanuts, eggs, milk, wheat) may have on the developing immune system and the later development of food sensitisation and food allergy. Such information would assist us in ensuring our dietary advice to prospective mothers is evidence-based and appropriate.

Research Approach

This project was part of a large-scale European Union project called EuroPrevall, which was carried out under the European Commission's 6th Framework research programme with the overall aim of improving the quality of life of those with food allergy. Part of EuroPrevall was concerned with gathering accurate information from across Europe on the patterns of prevalence of food allergies in infants, children and adults. Project T07046 formed the UK part of EuroPrevall which collected data on the prevalence of food allergies from birth to two years of age.

Pregnant women were recruited onto the study so as to create a birth cohort of over 1200 babies, who were followed from birth to 2 years of age. At recruitment, parents were asked to complete a detailed questionnaire to gather data on their allergic and dietary history as well as on all sorts of other relevant environmental and experiential factors. A further questionnaire was completed at one and two years of age to collect information on the child's health, environmental and dietary exposures. Any infant developing signs of a food allergy during the study was assessed in clinic using validated and standardised protocols to establish if they had a food allergy or not. For every symptomatic child on the study, 2 control children were recruited from the cohort and followed in the same way.

In addition to the above, and unique to the UK birth cohort, detailed prospective information were collected on the child's dietary intake from birth to 12 months of age, via a diary record. This enabled the researchers to investigate the relationship between early infant diet and the

development of food allergy.

Results

A total of 1197 infants and their mothers were recruited into the study. The UK mothers were representative of the recruitment area in terms of geography, age, education and ethnicity although they tended to be older and better educated than the average for the UK population. 733 of these infants were assessed at twelve months and 823 at 24 months. Daily infant food diaries were returned by the majority of mothers. A total of 594 participants completed diaries until 24 weeks of age, with 241 completing them for the whole first year of the infant's lives.

The results from the first two years of the lives of these infants in UK part of the EuroPrevall birth are covered in the final report. During this time a third of the infants were thought to have a food allergy by a parent. Of these infants, only a third had symptoms or allergy test results that the researcher's felt would convince a physician that the infant had food allergy. These infants underwent the gold-standard test for food allergy, a double-blind, placebo-controlled food challenge. This confirmed food allergy in one in twenty infants (5%). The commonest foods giving rise to reactions were, from most common to least common, cow's milk, egg, peanut, soy, wheat and fish.

Daily food diary data from the first year of these infants' lives was used to look for significant differences between infants with and without food allergy.

No significant differences in the level of nutrients consumed were found between those infants with or without food allergy.

Factors that were protective for food allergy were: continued feeding of breast milk whilst introducing solids, simultaneous feeding of breast milk and cow's milk formula, high diversity of diet, and following the infant feeding guidelines. The infant feeding guidelines were followed if the infant ate a wide variety of home-cooked foods containing plenty of fruit and vegetables and ate fish whilst consuming fewer crisps, commercial baby foods and potato products.

Food allergic infants were introduced to solids (but not allergens) earlier, were less likely to be receiving breast milk while starting a cow's milk formula or starting solids, followed a less diverse diet and were less likely to follow the infant feeding guidelines.

Published Papers

1. Grimshaw, K.E.C., Allen, K., Edwards, C.A., Beyer, K., Boulay, A., van der Aa, L.B., Sprikkelman, A., Belohlavkova, S., Clausen, M., Dubakiene, R., Duggan, E., Reche, M., Marino, L.V., Nørhede, P., Ogorodova, L., Schoemaker, A., Stanczyk-Przyluska, A., Szepfalusi, Z., Vassilopoulou, E., Veehof, S.H.E., Vlieg-Boerstra, B.J., Wjst, M. & Dubois, A.E.J. (2009) Infant feeding and allergy prevention: a review of current knowledge and recommendations. A EuroPrevall state of the art paper. *Allergy*, 64, 1407-16.2.
2. Grimshaw, K.E., Roberts, G., Selby, A., Reich, A., Butiene, I., Clausen, M., Dubakiene, R., Fiandor, A., Fiocchi, A., Grabenhenrich, L.B. and Larco, J.I., 2020. Risk factors for Hen's Egg allergy in Europe: EuroPrevall birth cohort. *The Journal of Allergy and Clinical Immunology: In Practice*, 8(4), pp.1341-1348.
3. Keil, T., McBride, D., Grimshaw, K., Niggemann, B., Xepapadaki, P., Zannikos, K., Sigurdardottir, S.T., Clausen, M., Reche, M., Pascual, C., Stanczyk, A.P., Kowalski, M.L., Dubakiene, R., Drasutiene, G., Roberts, G., Schoemaker, A.F., Sprikkelman, A.B., Fiocchi, A., Martelli, A., Dufour, S., Hourihane, J., Kulig, M., Wjst, M., Yazdanbakhsh, M., Szepfalusi, Z., van Ree, R., Willich, S.N., Wahn, U., Mills, E.N.C. & Beyer, K. (2010) The multinational birth cohort of EuroPrevall: background, aims and methods. *Allergy*, 65, 482-

4. McBride, D., Keil, T., Grabenhenrich, L. et al. (2012). The EuroPrevall birth cohort study on food allergy: baseline characteristics of 12,000 newborns and their families from nine European countries. *Pediatric allergy and immunology*. 23(3) 230-239, doi: 10.1111/j.1399-3038.2011.01254.x
5. Grimshaw, K.E.C., Oliver, E.M., Kemp, T., Mills, E.N.C., Beyer, K., Foote, K. and Roberts, G. (2012) Maternal Dietary Intake and Subsequent Allergy Development. *The Journal of Allergy and Clinical Immunology*. 129(2) S, AB173, doi:10.1016/j.jaci.2011.12.210
6. Grimshaw, K.E.C., Oliver, E.M., Kemp, T., Mills, E.N.C., Beyer, K., Foote, K. and Roberts, G. (2012) Maternal Dietary Intake and Subsequent Allergy Development. *The Journal of Allergy and Clinical Immunology*. 129(2) S, AB173, doi:10.1016/j.jaci.2011.12.210
7. Grimshaw, K.E.C, Maskell, J., Oliver, E.M, Morris, R.C.G., Foote, K.D., Mills, E.N.C., Margetts, B.M., Roberts, G. (2014) Diet and food allergy development during infancy: Birth cohort study findings using prospective food diary data. *The Journal of Allergy and Clinical Immunology*.133(2),511–519.0020, doi:10.1016/j.jaci.2013.05.035
8. Oliver, E.M., Grimshaw, K.E.C, Schoemaker, A.A., Keil, T., McBride,D., Sprickelman, A.B., Ragnarsdottir, H.S., Trendelenburg, V., Emmanouil, E., Reche, M., Fiocchi, A., Fiandor, .A., Stanczyk-Przyluska, A., Wilczynski, J., Busacca, M., Sigurdardottir, S.T., Dubakiene, R., Rudzeviciene, O, Vlaxos G.D, Beyer, K., Roberts, G. (2014) Dietary Habits and Supplement Use in Relation to National Pregnancy Recommendations: Data from the EuroPrevall Birth Cohort. *Maternal and Child Health Journal*. 18. 2408–2425. Doi: 10.1007/s10995-014-1480-5
9. A. A. Schoemaker, A. B. Sprickelman¹, K. E. Grimshaw, G. Roberts, L. Grabenhenrich, L. Rosenfeld, S. Siegert, R. Dubakiene, O. Rudzeviciene, M. Reche, A. Fiandor, N. G. Papadopoulos, A. Malamitsi-Puchner, A. Fiocchi, L. Dahdah, S. Th. Sigurdardottir, M. Clausen, A. Stanczyk-Przy?uska, K. Zeman, E. N. C. Mills, D. McBride, T. Keil, K. Beyer. (2015) Incidence and natural history of challenge-proven cow's milk allergy in European children – EuroPrevall birth cohort. *Allergy*. 70 (2015) 963–972, DOI:10.1111/all.12630
10. Selby A, Munro A, Grimshaw KEC et al. Prevalence estimates and risk factors for early childhood wheeze across Europe: the EuroPrevall birth cohort. *Thorax*. 2018 Nov;73(11):1049-1061. doi: 10.1136/thoraxjnl-2016-209429. Epub 2018 May 10.
11. Grimshaw, K.E., Roberts, G., Selby, A., Reich, A., Butiene, I., Clausen, M., Dubakiene, R., Fiandor, A., Fiocchi, A., Grabenhenrich, L.B. and Larco, J.I., 2020. Risk factors for Hen's Egg allergy in Europe: EuroPrevall birth cohort. *The Journal of Allergy and Clinical Immunology: In Practice*, 8(4), pp.1341-1348.

England, Northern Ireland and Wales

PDF

[View The prevalence of food allergy and weaning practices in a birth cohort of UK infants - - T07046 as PDF\(Open in a new window\)](#) (1.77 MB)