



Experiences of Double-Blind, Placebo-Controlled Food Challenges (DBPCFC): A qualitative analysis of mothers' experiences

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Abstract

Fear and anxiety are recurring problems for parents of food-allergic children. However, no study has described parents' experiences of introducing food to their children after double-blind provocation. Therefore the aim of this study was to investigate mothers' experiences during their child's negative Double-Blind, Placebo-Controlled Food Challenge (DBPCFC) and the following reintroduction of food. Eight mothers were interviewed and a qualitative content analysis displayed two themes and six subthemes. The first theme, 'living with fear of the unknown', included the subthemes of 'fear of losing control', 'having faith even though fear prevails', 'reintroducing despite fear' and 'fear of causing harm'. In the second theme, the mothers described the challenging process of 're-evaluating earlier experiences' through the sub-themes of 'daring to take new challenges' and 'refraining from new challenges'. Our study indicates that the maternal perspective – not only the professional perspective – needs to be taken into account if mothers are to succeed in the challenging process of reintroducing foods.

Keywords

Double-Blind, Placebo-Controlled Food Challenge, experience, food allergy, narratives, parents

Introduction

Food allergy is a growing problem among children in the Western world. Around 20 percent of Swedish children and adolescents experience or have experienced food allergy (Sandin et al.,

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2005). Data on the prevalence in the US show that six percent of young children and three–four percent of teenagers display allergies to food (Sicherer and Sampson, 2006). As early as the 1980s, Bock pointed out a decrease in food allergies as people age and a discrepancy between experienced and diagnosed food allergy (Bock, 1987). Even though food allergies are relatively common among children, only a few develop life-threatening reactions. There are some extremely serious exceptions, such as peanuts and tree nuts, that in some cases can produce life-threatening reactions even in very low doses (Nowak-Wegrzyn et al., 2001).

Independent of geographic differences, milk and eggs are the most common foods to trigger food allergy symptoms in children (Crespo et al., 1995; Dalal et al., 2002; Hill et al., 1999; Novembre et al., 1998; Rance et al., 1999). Many children and adolescents develop tolerance, which means that the allergy problems disappear as the child grows older (Bock, 1987). Because food allergy affects the child's everyday life (Bollinger et al., 2006; Marklund et al., 2006; Primeau et al., 2000) and tolerance development is common, it is important to follow up regularly to check whether the food allergy remains (Niggemann et al., 2005; Wood, 2003). Diagnostics for reactions to food are difficult and resource consuming. In order to establish a correct diagnosis, it is necessary to take a thorough, complete history, and to perform allergy tests and food provocations (Soyland Wasenius and Halvorsen, 2003). Food provocations may be open or single- or double-blinded; the most reliable method for confirming food allergy is Double-Blind, Placebo-Controlled Food Challenge (DBPCFC) (Niggemann et al., 2005; Pascual et al., 2000; Sampson and Ho, 1997). During a DBPCFC, the patient is provoked repeatedly with both active and placebo substances, although never simultaneously (Soyland Wasenius and Halvorsen, 2003).

Studies have found that parents are influenced by their child's food allergy. Joshi et al. (2002) found that only four out of 60 parents of food-allergic children could correctly identify the ingredients of 23 different foods. Marklund et al. (2006) described fear and anxiety as recurring problems for families with food-allergic children; their study showed that parents were generally more affected by the fear of their child's suffering an allergic reaction than they were by the allergic reactions themselves. In a questionnaire study, about half of the parents of food-allergic children reported heightened levels of stress caused by their child's food allergy (Bollinger et al., 2006). Furthermore, negative effects on social relations have been reported among parents with food allergic children (Primeau et al., 2000).

No study to our knowledge has described parents' experiences of introducing food to their children after Double-Blind, Placebo-Controlled Food Challenge (DBPCFC). Therefore the aim of this study was to investigate mothers' experiences during their child's negative Double-Blind, Placebo-Controlled Food Challenge, and the following reintroduction of food.

Methods

Context

Double-Blind, Placebo-Controlled Food Challenges were conducted with a Swedish population of children with diffuse and/or late symptoms of food allergy or food intolerance, where open provocations were difficult to interpret or to carry out. To date, 34 DBPCFCs in a total of 28 children have been completed. The tested foods were milk, wheat, egg, soy, cod and oats. Preliminary test results in 30 provocations were negative; three provocations indicated remaining food allergy or food intolerance and one was difficult to interpret. Bowel-related problems were the most common symptoms for these children, who ranged in age from five to 13 years ($m = 9.4$ years). The

majority of the children developed symptoms during their first year of life and the food in question had been excluded for many years. Specific IgE analysis (ImmunoCAP®) for the tested food ranged between classes 0 to 3 (IgE value < 0, 35–37 ku/l)

Participants

Mothers whose children had gone through DBPCFC between March 2004 and October 2006 were invited to participate in the present study. The children had been diagnosed with food allergy or food intolerance; in our study we generally use the terms ‘food allergy’ and ‘allergic reaction’. Criteria for inclusion were that the child had had a negative test result in a DBPCFC and that the tested food had been partly or wholly reintroduced to the everyday diet. Ten mothers met the criteria, but two of them declined after stating that their children had displayed allergic reactions to the foods that had previously tested negative. Eight mothers consented to participate in the study.

Six mothers had completely reintroduced the test food to the child’s diet and two had partly reintroduced the food. Two mothers had two children who had each gone through a DBPCFC whilst the remaining six mothers had one child each. One child was provoked for two foods and the remaining children were provoked for one food each. The children were aged five to 13 years and the mothers 31 to 46. Six of the eight mothers lived with the tested children’s father.

Interviews and analysis

Open interviews were performed by a research nurse. Each interview took place in the participant’s home and lasted about one hour. The main questions were ‘Can you describe how you experienced the double-blind provocation?’, and ‘What feelings did you have when the food was reintroduced after the double-blind food provocation?’ Follow-up questions were posed to clarify, invite reflection, or keep the conversation moving forward. All interviews were tape recorded and transcribed verbatim.

The interviews were analysed using qualitative content analysis (Angström-Brännström et al., 2008; Forsner et al., 2005; Hägglund et al., 2008; Nystedt et al., 2008). The most significant aspect of the method is that both text and context form the foundation for the analysis. Another key point is that both similarities and differences are analysed (Downe-Wamboldt, 1992; Graneheim and Lundman, 2004). Each text was read several times before meaning units (i.e. words, sentences or paragraphs that convey essential meaning) were identified. Each meaning unit was labelled with a code grouping similar experiences. The codes were then sorted and compared for differences and similarities. Similar codes were grouped into the categories of experiences prior to the Double-Blind, Placebo-Controlled Food Challenge, experiences of the presentation of test results, and strategies during the reintroduction. In the next step, the underlying meanings and threads of meanings recurring in different categories were identified and used to formulate themes and subthemes for analysis.

Results

In the present study, we found that the mothers experienced fear of the unknown when reintroducing food after the DBPCFC. In some cases, this fear affected the mothers’ re-evaluations of their earlier experiences of living with a child with food allergy.

To live with fear of the unknown (first theme) included feelings of losing control, having faith in the eventual outcome of the test even while too afraid to try reintroducing food (‘having faith even

Table 1. Overview of the themes and subthemes

Theme	Subtheme
Fear of the unknown	Fear of losing control
	Having faith even though fear prevails
	Reintroducing despite fear
Re-evaluating earlier experiences	Fear of causing harm
	Daring to take new challenges
	Refraining from new challenges

though fear prevails’), and reintroducing suspect food despite the fear. It also included fear of causing harm to the child when reintroducing food.

In the second theme, the mothers described the challenge of ‘re-evaluating earlier experiences’ of their child’s food allergy. The re-evaluation was a challenge for the mothers and influenced how successfully they reintroduced the food. This theme was based on the subthemes ‘daring to take new challenges’ and ‘refraining from new challenges’, which showed that some mothers successfully reintroduced the food to everyday life, while others did not fully succeed in the reintroduction (Table 1).

Living with fear of the unknown

The mothers had all lived for several years with a child with food allergy. After the negative test results from the DBPCFC, some mothers had to adjust from having a child with food allergy to suddenly having a child without allergy. This process can be described as living with fear of the unknown, which can include fear of losing control, having faith though fear prevails, reintroducing despite fear, and fear of causing the child harm.

Fear of losing control. All mothers expressed fear in different degrees regarding their child’s possible allergic reactions during the provocation. The food provocation could be seen as something beyond the mother’s own choice or out of her control. Some mothers described feeling distrusted by the referring physician and feeling that their knowledge and experiences were being questioned. The fear of losing control was also expressed as the fear that the food provocation was not safe:

I trust my feelings and they told me that if we’d added milk to her diet, she would have suffered severe eczema. If I had reintroduced milk [after the provocation] I wouldn’t have trusted my feelings.

Fear of losing control was also experienced during the double-blind food provocations when the child did not show the expected allergic reactions. One mother described it as ‘profoundly revolutionary’. Some mothers questioned if the child had really been exposed to the correct test food during the provocation when the result was presented.

Having faith even though fear prevails. Despite fear of losing control, these mothers stated that they did not regret the DBPCFC and they expressed relief that the provocation would determine whether or not their child really was allergic. The mothers admitted that they did not have the courage to reintroduce the food by themselves, but they wanted to carry through the DBPCFC, even if the provocation was prolonged and disturbed their ordinary life and work. It was a relief to have

someone else take responsibility for the interpretation of their child's reactions: 'I didn't know what was administered during the provocations and that was a relief.'

It was also positive to transfer the responsibility of the child's symptoms to the staff, because the mothers trusted them and believed in the information they gave. They received understanding, new knowledge and answers to their questions. Mothers who trusted the method recommended it to friends with similar problems. They also found the DBPCFC to be a good method to interpret the child's symptoms. Sometimes the mothers wanted the children to take responsibility for their food intake themselves:

I look at her or see how she reacts when she has eaten too much and then I feel insecure. I think that she's strong enough to know what she can take. Sometimes I tell her that she shouldn't eat any more, because it can make her condition worse. It is a difficult thing to know when to tell her and when not to.

The mothers hovered between trust and the fear of losing control, but that ambivalence did not always cause distrust of the result of the DBPCFC.

Reintroducing despite fear. Despite the mothers' fears the tested food had partly or wholly been reintroduced to the child's everyday diet. The intensity of fear during the reintroduction varied. One mother described her feelings during the reintroduction as 'mixing poison into [the child's] food'. The majority of mothers said they had acquired new knowledge and gained confidence about reintroducing the foods, even though they were afraid. One mother gave the following description of the turning point when she overcame her fear:

We were having pancakes and he was feeling well, then my scepticism disappeared. I could see with my own eyes that he was feeling well and understood that it's probably only my own fears or feelings that stop me.

When the child did not display allergic symptoms, the mothers' fear faded away and the reintroduction continued. The mothers also gave voice to the possibility that the food could have been reintroduced earlier in the child's life.

Fear of causing harm. In some interviews the fear was expressed that large amounts of the tested food might damage the child's body, which would need time to heal before it could cope with any more food of any kind ('I was worried that her intestines and other organs would be affected with lifelong injuries. The gut must rest and not be made to suffer from what she can't really take'). Some mothers also thought that giving their children occasional sweets or cookies would result in fewer allergic symptoms than allowing them to eat the test food regularly and in increasing amounts.

Mothers often interpreted the child's fatigue or change of mood as symptomatic of food allergy. Sometimes they 'trusted their interpretations' and reintroduced less of the food than recommended, despite negative test results from provocation and recommendations to reintroduce the food completely. These mothers were frustrated that their interpretations were questioned by relatives and friends.

To re-evaluate earlier experiences

In the process of reintroducing food after the DBPCFC the mothers had to re-evaluate their earlier experiences. This re-evaluation was a challenge for the mothers and influenced how successfully they performed the reintroduction. Some mothers dared to take new challenges, while others avoided new challenges.

Daring to take new challenges. When the negative result was presented after the DBPCFC, these mothers felt satisfaction and hope that the food in question could be reintroduced. They experienced new knowledge and received ‘new tools’ to cope with the situation. Even before the final results were in, some mothers looked forward to a future food regimen with fewer restrictions. When the fear of allergic symptoms vanished and the child seemed healthy these mothers achieved a sense of confidence and stopped controlling the child’s food intake. The mothers were thus rewarded with liberty and more spare time. The new situation was described as ‘no longer having to be the food police’. The mothers changed views about their child’s symptoms made them feel safer and free from unjustified fear. As one mother said ‘If he drinks too much milk, he’ll have an upset stomach, but that’s manageable’.

The sensation of being rewarded in everyday life was described in many ways, including less time-consuming food preparation, lower food expenses and more inspiring meals than before. Reintroduction of food returned family lives to normal and they could now eat all the foods they had been longing for. They felt the satisfaction of being relieved of a burden. ‘I feel joy when my son is happy for eating a popsicle,’ said one mother.

Some mothers, however, described themselves living the same life as before, with a restrictive diet and the burden of extended control. As time went by, though, some of these mothers realized that the child could eat other foods and they then changed the daily routines.

Refraining from new challenges. From the mothers’ stories, it was clear that some only partly reintroduced the food in question even though the child tested negative in the DBPCFC. They explained that it was difficult to reintroduce the food because they already had a daily routine they felt safe with. When the child’s allergic symptoms were first manifest, it was difficult to keep a restrictive diet; now it was difficult to reintroduce a normal diet. It appeared that they were lacking in both knowledge and moral support before and during the reintroduction. When they did not overcome the fear, it simply felt safer to continue with the established routine. The experience of refraining from new challenges was put this way by one of these mothers: ‘I can’t put words on it emotionally, I mean: we’re living a milk-free life. It’s the way our lives are and we are fully adapted to it. Our situation’s neither negative nor positive’.

Discussion

This study describes mothers’ experiences during their child’s Double-Blind, Placebo-Controlled Food Challenge and during the reintroduction of food. The findings indicate that the mothers lived with fear of the unknown. They were afraid of losing control over the children and their symptoms, but at the same time they experienced confidence in the staff and the method. The food in question was reintroduced wholly or partly despite fear of harming the child. All mothers re-evaluated their earlier experiences during the food provocation and they received new knowledge. The majority of the mothers dared to take new challenges, reintroduced the food to the everyday diet and felt they

had received rewards. The remaining mothers refrained from new challenges, reintroduced the food only partly and remained afraid.

It is possible that the mothers' fears arose from the desire to protect their children from allergic reactions. Acute fear can be a normal reaction to threat and, like pain, its function is connected to basic survival (Rice Hill, 2000). Fear can also be a hindrance to everyday life. Bowel-related problems were the most common symptoms for the children in this study, but while these problems can give symptoms over a long period of time, they are not life threatening. The mothers might have felt a different kind of long-term stress as compared to the acute stress when anaphylaxis symptoms occur. In the latter case, the parents have access to acute medications and are prepared when and if it happens again. Crnic and Greenberg (1990) found that mothers' minor daily irritations affected everyday life more than did acute situations. Avery et al., 2003 showed that children with peanut allergy experienced lower quality of life than children with type 1 diabetes. This result may be attributable to the fact that the children experienced different kinds of stress depending on their diagnosis.

In our study it was obvious that the mothers' fear of reintroducing food was due to the risk of harming their child's body. These feelings were probably caused by lack of knowledge. Parents have been shown to experience fear when they lack information or receive incomplete information about the diagnosis of their child (Jackson et al., 2007). Lack of exact information also raises doubts regarding the validity of the diagnosis. Mandell et al. (2005) also reported that parents of children suffering from life-threatening allergies were frightened when they felt they received incomplete information about their child's disease. Increased knowledge requires that standardized training in food allergies be provided to school children with food allergy and their families. The school nurse has a crucial role in this training, which also includes the school staff (Weiss et al., 2004). An integrated approach involving a multidisciplinary team including an allergy nurse specialist is optimal for the management of children with food allergy (Thong and Hourihane, 2004).

The majority of the interviewed mothers dared to take new challenges and felt rewarded when the everyday routines and the family's social activities became easier to manage. Some mothers, however, refrained from new challenges, and only partly reintroduced the food while remaining afraid. The majority of the children had excluded the food in question for many years and the family had learned to live with dietary restrictions and extra control. Changing the restrictive food routines back to normal proved to be a difficult task in itself. Earle et al. (2007) described how parents always struggle hard to uphold a normalized everyday routine, even if the child has a severe disease.

The child's food allergy may decrease as the child grows older, which makes it important to continue with regular follow-ups (Niggemann et al., 2005; Wood, 2003). Even if families receive information on how to reintroduce food, the fear of allergy symptoms may prevail and hinder the reintroduction at home. This was confirmed in a study by Eigenmann et al. (2006), where 18 families out of 73 did not reintroduce the food at home after negative single- or double-blind food provocation. Eigenmann et al. (2006) found that men reintroduced foods more often than women. It would have been interesting to include gender perspective in this study and also to include information on how the parents shared the responsibility for cooking at home.

A limitation of this study may be the small sample size, yet the intention to elucidate variation in the data was met in the interviews. Several other studies using content analysis (Ångström-Brännström et al., 2008; Forsner et al., 2005; Hägglund et al., 2008; Nystedt et al., 2008) have been based on similar sample sizes. The sample was homogenous and the research question of the study was narrow. Throughout the research process, strategies for fulfilling trustworthiness of the

qualitative method were implemented (Graneheim and Lundman, 2004). The interviews were conducted by an experienced research nurse not otherwise involved in the clinical food-allergy team. The data collection, transcription of the interviews and analysis were carefully described, but we are aware that the analysis of narrative interviews always involves multiple meanings and can be interpreted in various ways, therefore each transcript was read many times and the categories and themes were discussed and re-evaluated until the researchers found that the themes reoccurred over and over again and consensus was reached.

The children participating in the DBPCFC were recruited in different ways. This might have influenced the mothers' experiences. Some children were referred by the school doctor with a request for the investigation of a possible food allergy; some parents initiated personal contact with the author of this study; however, the majority were recruited by paediatricians within the department.

Our study indicates that support from a multidisciplinary team including an allergy nurse specialist (Thong and Hourihane, 2004) would be of great importance in managing childhood food allergy and the process of reintroduction of foods to the child in everyday life. Our study points out that the mothers' perspective on the reintroduction of foods, and not only the professional perspective, needs to be taken into account if the mothers are going to succeed in this challenging process (Paterson, 2001). More studies are also needed to collect knowledge for the guidance of families whose child continues to display allergic symptoms despite negative allergic reaction tests and negative food provocations.

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References

- Angström-Brännström C, Norberg A, and Jansson L (2008) Narratives of children with chronic illness about being comforted. *Journal of Pediatric Nursing* 23(4): 310–316.
- Avery NJ, King RM, Knight S, and Hourihane JO (2003) Assessment of quality of life in children with peanut allergy. *Pediatric Allergy and Immunology* 14(5): 378–382.
- Bock SA (1987) Prospective appraisal of complaints of adverse reactions to foods in children during the first 3 years of life. *Pediatrics* 79(5): 683–688.
- Bollinger ME, Dahlquist LM, Mudd K, Sonntag C, Dillinger L, and McKenna K (2006) The impact of food allergy on the daily activities of children and their families. *Annals of Allergy, Asthma & Immunology* 96(3): 415–421.
- Crespo JF, Pascual C, Burks AW, Helm RM, and Esteban MM (1995) Frequency of food allergy in a pediatric population from Spain. *Pediatric Allergy and Immunology* 6(1): 39–43.
- Crnici KA, Greenberg MT (1990) Minor parenting stresses with young children. *Child Development* 61(5): 1628–1637.
- Dalal I, Binson I, Reifen R, Amitai Z, Shohat T, Rahmani S, Levine A, Ballin A, and Somekh E (2002) Food allergy is a matter of geography after all: sesame as a major cause of severe IgE-mediated food allergic reactions among infants and young children in Israel. *Allergy* 57(4): 362–365.

- Downe-Wamboldt B (1992) Content analysis: method, applications, and issues. *Health Care for Women International* 13(3): 313–321.
- Earle E, Clarke SA, Eiser C, and Sheppard L (2007) ‘Building a new normality’: mothers’ experiences of caring for a child with acute lymphoblastic leukaemia. *Child: Care, Health and Development* 33(2): 155–160.
- Eigenmann PA, Caubet JC, and Zamora SA (2006) Continuing food-avoidance diets after negative food challenges. *Pediatric Allergy and Immunology* 17(8): 601–605.
- Forsner M, Jansson L, and Soerlie W (2005) Being ill as narrated by children aged 11–18 Years. *Journal of Child Health Care* 9(4): 314–23.
- Graneheim UH, Lundman B (2004) Qualitative content analysis in nursing research: concepts, procedures and measures to achieve trustworthiness. *Nurse Education Today* 24(2): 105–112.
- Hägglund L, Boman K, and Lundman B (2008) The experience of fatigue among elderly women with chronic heart failure. *European Journal of Cardiovascular Nursing* 7(4): 290–295.
- Hill DJ, Hosking CS, and Heine RG (1999) Clinical spectrum of food allergy in children in Australia and South-East Asia: identification and targets for treatment. *Annals of Medicine* 31(4): 272–281.
- Jackson AC, Stewart H, O’Toole M, Tokatlian N, Enderby K, Miller J, and Ashley D (2007) Pediatric brain tumor patients: their parents’ perceptions of the hospital experience. *Journal of Pediatric Oncology Nursing* 24(2): 95–105.
- Joshi P, Mofidi S, and Sicherer SH (2002) Interpretation of commercial food ingredient labels by parents of food-allergic children. *Journal of Allergy and Clinical Immunology* 109(6): 1019–1021.
- Mandell D, Curtis R, Gold M, and Hardie S (2005) Anaphylaxis: how do you live with it? *Health & Social Work* 30(4): 325–335.
- Marklund B, Ahlstedt S, and Nordstrom G (2006) Health-related quality of life in food hypersensitive school-children and their families: parents’ perceptions. *Health and Quality of Life Outcomes* 4: 48.
- Niggemann B, Rolinck-Werninghaus C, Mehl A, Binder C, Ziegert M, and Beyer K (2005) Controlled oral food challenges in children – when indicated, when superfluous? *Allergy* 60(7): 865–870.
- Novembre E, Cianferoni A, Bernardini R, Mugnaini L, Caffarelli C, Cavagni G, Giovane A, and Vierucci A. (1998) Anaphylaxis in children: clinical and allergologic features. *Pediatrics* 101(4): E8.
- Nowak-Wegrzyn A, Conover-Walker MK, and Wood RA (2001) Food-allergic reactions in schools and pre-schools. *Archives of Pediatrics and Adolescent Medicine* 155(7): 790–795.
- Nystedt A, Högberg U, and Lundman B (2008) Women’s experiences of becoming a mother after prolonged labour. *Journal of Advanced Nursing* 63(3): 250–258.
- Pascual CY, Crespo JF, Perez PG, and Esteban MM (2000) Food allergy and intolerance in children and adolescents, an update. *European Journal of Clinical Nutrition* 54 (Suppl. 1): S75–78.
- Paterson BL (2001) The shifting perspectives model of chronic illness. *Journal of Nursing Scholarship* 30(1): 21–26.
- Primeau MN, Kagan R, Joseph L, Lim H, Dufresne C, Duffy C, Prchal D, and Clarke A (2000) The psychological burden of peanut allergy as perceived by adults with peanut allergy and the parents of peanut-allergic children. *Clinical and Experimental Allergy* 30(8): 1135–1143.
- Rance F, Kanny G, Dutau G, and Moneret-Vautrin DA (1999) Food hypersensitivity in children: clinical aspects and distribution of allergens. *Pediatric Allergy and Immunology* 10(1) 33–38.
- Rice Hill V (ed.) (2000) *Handbook of Stress, Coping, and Health: Implications For Nursing Research, Theory, and Practice*. Thousand Oaks, CA: Sage Publications.
- Sampson HA, Ho DG (1997) Relationship between food-specific IgE concentrations and the risk of positive food challenges in children and adolescents. *Journal of Allergy and Clinical Immunology* 100(4): 444–451.

- Sandin A, Annus T, Bjorksten B, Nilsson L, Riikjarv MA, van Hage-Hamsten M, and Braback L (2005) Prevalence of self-reported food allergy and IgE antibodies to food allergens in Swedish and Estonian school-children. *European Journal of Clinical Nutrition* 59(3): 399–403.
- Sicherer SH, Sampson HA (2006) 9. Food Allergy. *Journal of Allergy and Clinical Immunology* 117(2 Suppl. Mini-Primer): S470–475.
- Soyland Wasenius AK, Halvorsen R (2003) [Oral Provocation Tests for Adverse Reactions to Food.] *Tidskrift for den Norske lægeforening* 123(13–14): 1829–1830.
- Thong BY, Hourihane JO (2004) Monitoring of IgE-mediated food allergy in childhood. *Acta Paediatrica* 93:759–764.
- Weiss C, Munoz-Furlong A, Furlong T, and Arbit J (2004) Impact of food allergies on school nursing practice. *The Journal of School Nursing* 20(5): 268–278.
- Wood RA (2003) The natural history of food allergy. *Pediatrics* 111(6 Pt 3): 1631–1637.