



**Karolinska  
Institutet**

**Institutionen för klinisk forskning och utbildning,  
Södersjukhuset**

# Severe reactions to foods in childhood

- clinical perspectives, epidemiology and risk management

**AKADEMISK AVHANDLING**

som för avläggande av medicine doktorsexamen vid Karolinska  
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# ABSTRACT

Food allergy is a public health issue, particularly among children, and seems to be increasing worldwide. Allergic reactions to foods vary in terms of symptoms and severity. Anaphylaxis, the most severe allergic reaction, can be fatal. Food allergy has significant negative impact in the daily lives of allergic children and their families.

The overall aim of this thesis was to gain knowledge about severe reactions to foods among Swedish children with regard to epidemiology, clinical perspectives (study I and II respectively), and risk management (study III). Study I (paper I and II) is an emergency department (ED) medical record study based on a retrospective chart review performed at three hospitals in Stockholm targeting children with anaphylaxis and allergic reactions to foods during 2007. Study II (paper III) is a cohort study where children identified in study I were investigated in relation to new ED visits during the follow-up period 1 January 2007 – 30 June 2010. Study III (paper IV) is a qualitative study where 10 focus group discussions were conducted with 31 parents of food-allergic children to explore strategies of risk management.

## **The main findings in relation to the three study areas in this thesis are:**

**Epidemiology:** The incidence of anaphylaxis managed at paediatric EDs in Stockholm during 2007 was 32 per 100 000 person-years and food was involved in 92% (paper II). The incidence of subsequent ED visits for reactions to foods among children with a prior ED visit due to reactions to foods was 92 per 1000 person-years. Previously known food allergy was a risk factor for subsequent ED visits (paper III).

**Clinical perspectives:** The current guidelines presented in the European Academy of Allergology and Clinical Immunology position paper on anaphylaxis in children were not entirely easy to apply when classifying and grading the severity of anaphylaxis in our study population. We attribute this difficulty to lack of description of some respiratory and neurological symptoms and use of subjective wordings (paper I). Among 371 children who visited the EDs due to acute reactions to foods, tree nuts and peanuts were the most common eliciting foods. Among children under three years these allergens were actually as common triggers as milk and egg (paper II). Most children prescribed with adrenaline auto-injectors did not use their device when they experienced anaphylaxis (paper II and III). The severity of previous reactions to foods could not accurately predict the severity of subsequent reactions. However, treatment with adrenaline often hampered the classification of change in severity (paper III).

**Risk management:** The management of food allergy risk permeates many aspects of everyday life according to the parents in study III. Although most followed the norm of constant risk avoidance and vigilance, some took calculated risks in specific situations where the parent could observe and manage the danger. Parents did this to counterbalance the burden of the food-allergic condition, not only for the child but also for the family as a whole (paper IV).

**In summary:** This thesis provides novel data on the epidemiology and clinical characteristics of anaphylaxis and severe reactions to foods among Swedish children. In addition, it provides information about the unpredictability of the food allergic condition and the difficulties associated with studying the disease. Finally, it demonstrates the impact of risk management on parents and family life, and also how risk avoidance and calculated risk-taking are intertwined and can be seen as two sides of the same coin: parent responsibility.