

## **FOOD PROTEIN INDUCED ENTEROCOLITIS SYNDROME (FPIES)**

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### **Abstract**

Food Protein Induced Enterocolitis Syndrome (FPIES – pronounced F-pies) is a rare delayed type of food allergy which leads to repeated vomiting and other gastrointestinal symptoms up to several hours after a problem food (or baby formula) is eaten.

Delays in diagnosis are frequent, since many frontline healthcare providers are not aware of the condition and presenting clinical features can mimic more common paediatric presentations, such as sepsis and surgical abdominal emergencies. Consequently, children with FPIES often have multiple episodes, additional investigations and hospital admissions before a diagnosis of FPIES is made.

There is very limited data on FPIES in the UK and this study is intended to improve our knowledge of the incidence, clinical presentation and management as well as improve awareness amongst paediatricians. This has the potential to benefit patients and families through quicker diagnosis and instigation of effective management of FPIES.

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### **Website**

[www.rcpch.ac.uk/bpsu/fpies](http://www.rcpch.ac.uk/bpsu/fpies)

### **Background**

FPIES is a rare but serious form of food allergy. It manifests in infancy as repetitive vomiting, diarrhoea and a systemic inflammatory response. In some children it may progress to dehydration and shock. It was first described about 30 years ago in the US.<sup>1</sup> Over the last decade increasing numbers of cases are being recognised by paediatricians in the UK.<sup>2</sup> However, the condition is under recognised which can lead to misdiagnosis and delay in treatment.<sup>3</sup> The most common foods causing FPIES are cow's milk, soya and rice although many other causative foods have been described.<sup>4</sup> Diagnosis is predominantly clinical, and management involves dietary exclusion and symptomatic treatment in cases of accidental ingestion.

There is very limited available data regarding the incidence and prognosis of this condition, and none from the UK. A single study in Israel showed a cumulative incidence of 0.34% of milk FPIES.<sup>4</sup> Our clinical experience suggests that the UK incidence of this rare but important condition is much lower, but this may be due to under recognition by UK paediatricians.<sup>2</sup> The Australian PSU has recently completed an FPIES survey and have recently published. They

reported 230 cases in 29 months with an incidence of 15.4/100000/year<sup>5</sup>.

<b>Coverage</b>	United Kingdom and Republic of Ireland
<b>Duration</b>	January 2019 to January 2020 (13 months of surveillance)
<b>Research Questions</b>	<ul style="list-style-type: none"><li>▪ Estimate the incidence of FPIES in children in the UK and Ireland</li><li>▪ Describe the demographic features of children with FPIES</li><li>▪ Describe the implied food trigger(s)</li><li>▪ Describe the current management practices and patient journey for children presenting with FPIES</li></ul>
<b>Case definition</b>	<ol style="list-style-type: none"><li>1. An infant under 24 months at time of initial FPIES reaction where there was a history of</li><li>2. Repeated episodes of vomiting presenting within 4 hours after eating, <b>where</b></li><li>3. Removal of this food resulted in resolution of symptoms</li></ol> <p><b>Excluding:</b></p> <ul style="list-style-type: none"><li>▪ Fever &gt;38°C</li><li>▪ Any cutaneous symptoms (urticaria, angioedema)</li><li>▪ Respiratory features (difficulty in breathing/talking, swelling of tongue, tight throat/hoarse voice, wheeze and/or persistent cough)</li><li>▪ Other causes such as confirmed sepsis, an acute abdomen, gastroenteritis or cyclical vomiting syndrome.</li></ul>
<b>Reporting instructions</b>	To report any cases seen within the last month that meet the case definition (including cases seen in clinic)
<b>Methods</b>	<p>Each paediatrician reporting a child who meets the above case definition of FPIES will be sent a clinical questionnaire by the study team.</p> <p>Throughout the study, all patient data will be dealt with in strict confidence, and affected children and their families will not be contacted directly by the FPIES study team at any stage</p>
<b>Ethics approval</b>	London - Stanmore Research Ethics Committee (reference: 18/LO/0972) and HRA Confidentiality Advisory Group (reference: 18/CAG/0113). Public Benefit & Privacy Panel, Scotland approval is awaited.
<b>Support group</b>	Allergy UK ( <a href="http://www.allergyuk.org">www.allergyuk.org</a> ) and FPIES UK ( <a href="http://www.fpiesuk.org">www.fpiesuk.org</a> )
<b>Funding</b>	The funding for the study comes from the Midlands Asthma and Allergy Research Association (MAARA).
<b>References;</b>	<ol style="list-style-type: none"><li>1. Powell GK. Food protein-induced enterocolitis of infancy: differential diagnosis and management. <i>Compr Ther</i> 1986; 12:28-37.</li><li>2. Ludman S, Harmon M, Whiting D, du Toit G. Clinical presentation and referral characteristics of food protein-induced enterocolitis syndrome in the United Kingdom. <i>Ann Allergy Asthma Immunol</i> 2014; 113:290-4.</li><li>3. Mehr S, Kakakios A, Frith K, Kemp AS. Food protein-induced enterocolitis syndrome: 16-year experience. <i>Pediatrics</i> 2009; 123:e459-64.</li><li>4. Katz Y, Goldberg MR, Rajuan N, Cohen A, Leshno M. The prevalence and natural course of food protein-induced enterocolitis syndrome to cow's milk: a large-scale, prospective population-based study. <i>J Allergy Clin Immunol</i> 2011; 127:647-53.e1-3</li><li>5. Nowak-Wegrzyn A, Chehade M, Groetch ME et al. International consensus guidelines for the diagnosis and management of food protein-induced enterocolitis syndrome: Executive summary-Workgroup Report of the adverse reactions to foods committee, American Academy of Allergy, Asthma &amp; Immunology. <i>J Allergy Clin Immunol</i> 2017; 139(4): 1111-1126.</li></ol>