WEEKLY EPIDEMIOLOGICAL REPORT

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Understanding Food Allergies

Introduction

Food allergies are the result of abnormal responses of the immune system of the body to specific proteins in a food that can cause adverse reactions.

Food allergies are a growing global public health concern, with an estimated 220 million individuals worldwide affected. These immune-mediated conditions, particularly IgE-associated food allergies, can cause severe, potentially fatal reactions such as anaphylaxis. The impact of food allergy extends beyond physical health, influencing dietary habits, quality of life and healthcare systems.

Historical and immunological foundations of allergy

The term "allergy" was introduced in 1906 by Austrian paediatrician Clemens von Pirquet, who observed altered immune responses in children treated with serum therapy. Building on this, Coombs and Gell later proposed a classification of hypersensitivity reactions into four subtypes according to the type of immune response and the effector mechanism responsible for cell and tissue injury: type I, immediate or IgE mediated; type II, cytotoxic or IgG/IgM mediated; type III, IgG/IgM immune complex mediated; and type IV, delayed-type hypersensitivity or T-cell mediated. Among these, Type I hypersensitivity, mediated by immunoglobulin E (IgE), is central to most food-related allergic reactions.

In Type I food allergies, allergens stimulate the production of IgE antibodies, which bind to high-affinity receptors on mast cells and basophils. Upon re-exposure, cross-linking of bound IgE by the allergen causes immediate release of histamine and other inflammatory mediators, leading to symptoms such as urticaria, bronchospasm, vomiting, and anaphylaxis. These reactions may be followed by late-phase inflammation, driven by T cells and eosinophils, resulting in prolonged tissue damage and chronic symptoms.

Classification of food reactions

Food-related adverse effects can be divided into toxic and non-toxic reactions. Toxic reactions occur in anyone if the dose is high enough. Non-toxic reactions are further classified into non-immune-mediated reactions, such as lactose intolerance, and immune-mediated reactions. Immune-mediated food reactions include IgE-mediated (Type I) reactions, which are rapid and potentially severe; cell-mediated (Type IV) reactions, including conditions like coeliac disease; and innate immune responses mediated by Toll-like receptors and complement systems. Among these, IgE-mediated food allergies represent the most acute and potentially life-threatening type, accounting for the majority of anaphylaxis cases.

Global burden and rising trends

In developed countries, 3–8 % of children and 1–3 % of adults are affected by IgE-mediated food allergies, and prevalence continues to climb likely driven by reduced early-life microbial exposure (the “hygiene hypothesis”), rapid dietary and environmental shifts, widespread antibiotic use, and epigenetic changes such as differential DNA methylation in T-cell lines.

The foods most frequently implicated worldwide include milk, egg, wheat, peanut, tree nuts, sesame, and fish; while some childhood allergies (e.g., milk or egg) may resolve with age, others, particularly peanut and tree-nut allergies, often persist into adulthood. Reflecting these patterns, international expert consensus has designated milk, eggs, peanuts, tree nuts (hazelnut, cashew, walnut, pistachio, pecan, almond), sesame, fish, crustacean, and gluten-containing cereals (wheat, rye, barley, and their hybrids) as global priority allergens that require mandatory labelling because of their high prevalence, allergenic potency, and strong association with anaphylaxis. Collectively, these foods together with soy and shellfish account for roughly 90 % of food-allergic reactions in Western populations; however, regional diets create additional hotspots. For example, sesame is a common trigger in Israel, buckwheat in Japan, and lupin in parts of Europe and Australia.

Other regionally important allergens include celery, mustard, oats, Brazil nut, and macadamia. National authorities are therefore encouraged to apply the same risk-assessment framework to tailor labelling and public-health measures to local needs. Furthermore, the globalisation of diets and expansion of food-processing techniques continue to introduce novel allergens across borders, sensitising populations to foods previously considered uncommon.

Diagnosis and advances in allergen profiling

Accurate diagnosis of food allergy relies on clinical history, skin prick tests, serum-specific IgE testing, and oral food challenges, which remain the gold standard. Recently, component-resolved diagnostics (CRD), including chip-based multi-allergen tests, allow clinicians to identify specific molecular components of food allergens, assess cross-reactivity, and predict reaction severity. This approach supports personalised allergy management and targeted immunotherapy.

Anaphylaxis: Recognition and immediate management

Anaphylaxis is the most dangerous outcome of IgE-mediated allergy and requires immediate treatment. It can be fatal without prompt action. Risk factors include a personal history of allergy, asthma, or eczema, though anaphylaxis can also occur without prior warning. Management includes rapid recognition of symptoms, immediate intramuscular injection of adrenaline (1:1000), and urgent referral to a hospital for further care.

Recognising and responding to symptoms

If you are allergic to a food that you have eaten, symptoms may appear within a few minutes to a few hours. Symptoms of food allergies can include hives, flushed skin or rash, tingling or itchy sensation in the mouth, face/tongue/lip swelling, vomiting, diarrhoea, abdominal cramps, coughing, wheezing, dizziness, and swelling of the throat and vocal cords. In severe cases, loss of consciousness can occur. While many symptoms are mild, they can progress to life-threatening anaphylaxis.

Anaphylaxis can cause constricted airways in the lungs, severe lowering of blood pressure, and suffocation due to swelling of the throat and larynx. If a person with a known food allergy experiences symptoms, they should stop eating immediately, evaluate the need for emergency treatment (e.g., epinephrine), and seek medical care. Early recognition and prompt injection of epinephrine can be lifesaving. It is important to understand that even mild reactions can escalate. Allergic individuals should always monitor symptoms closely and be prepared for a rapid response.

Reducing the risk

To minimise the risk of food allergy reactions, allergic individuals and caregivers should always read food labels, avoid known allergens, recognise early symptoms, and be ready to act in case of accidental exposure. Having ready access to treatment measures like epinephrine and emergency medical services is essential. Exclusive breastfeeding for the first 4–6 months helps prevent allergies by transferring protective Secretory Immunoglobulin A (SIgA) antibodies and avoiding early exposure to allergens. While some studies suggest early probiotic use may reduce eczema, overall evidence does not support probiotics, prebiotics, or lipopolysaccharides as effective in preventing food allergies. Research is ongoing to identify specific supplements that might influence allergy development.

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Table 1: Selected notifiable diseases reported by Medical Officers of Health 26th-02nd May 2025 (18th Week)

RDHS	Dengue Fever		Dysentery		Encephalitis		En. Fever		F. Poisoning		Leptospirosis		Typhus F.		Viral Hep.		H. Rabiies		Chickenpox		Meningitis		Leishmania-		Tuberculosis		WRCD	
	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	T*	C**
Colombo	276	4381	0	15	0	3	0	4	0	5	12	178	1	5	0	8	0	0	13	215	0	23	0	1	47	738	**94**	**100**
Gampaha	158	2722	0	22	2	20	0	1	0	46	13	284	0	7	0	5	0	0	16	344	4	54	0	18	26	391	**100**	**100**
Kalutara	59	727	0	12	2	5	0	5	0	13	14	248	1	1	0	3	0	0	19	312	1	20	0	1	1	199	**96**	**75**
Kandy	60	1132	0	28	0	2	0	4	2	10	6	115	0	26	0	5	0	0	10	172	0	12	0	28	26	278	**100**	**100**
Matale	28	608	1	10	0	1	0	0	8	43	7	88	0	3	0	5	0	0	4	49	0	2	5	92	2	58	**100**	**100**
Nuwara Eliya	6	79	0	30	0	4	0	4	0	44	1	50	0	24	0	0	0	0	5	99	0	9	0	0	7	103	**92**	**100**
Galle	29	730	1	20	0	3	0	0	0	29	14	326	2	34	1	6	1	1	13	306	3	71	0	1	9	173	**100**	**100**
Hambantota	24	342	0	9	0	4	0	0	0	3	15	185	0	14	1	3	0	0	9	172	0	9	14	119	3	58	**100**	**100**
Matara	38	657	0	7	0	2	0	1	0	3	12	204	0	9	0	2	0	0	13	166	1	20	4	42	4	67	**82**	**100**
Jaffna	20	574	2	39	0	2	0	10	1	21	0	114	11	312	0	2	0	1	7	180	1	13	0	0	7	75	**86**	**93**
Kilinochchi	1	51	0	7	0	0	0	4	0	4	2	50	0	11	0	1	0	0	0	1	0	0	1	1	2	19	**100**	**100**
Mannar	6	93	0	4	0	0	0	0	0	2	0	17	1	10	0	0	0	0	1	14	0	11	0	0	6	19	**100**	**100**
Vavuniya	3	37	0	6	0	0	0	1	2	26	3	48	0	5	0	0	0	0	0	19	1	13	0	8	0	18	**100**	**100**
Mullaitivu	2	31	2	3	0	0	0	1	0	2	3	44	0	6	0	0	0	0	1	17	0	4	1	1	0	11	**83**	**100**
Batticaloa	84	1076	4	81	0	9	0	0	0	70	4	43	0	1	0	11	0	0	4	88	0	19	0	2	6	54	**100**	**100**
Ampara	12	87	1	15	1	7	0	0	1	5	6	87	0	1	0	2	0	0	5	69	3	16	0	10	1	21	**86**	**100**
Trincomalee	64	573	0	26	0	2	0	0	0	25	4	78	0	7	0	4	0	0	4	57	0	9	0	3	2	36	**100**	**100**
Kurunegala	34	472	4	18	0	10	0	1	0	23	37	348	0	18	1	2	0	1	13	315	3	57	8	203	0	123	**37**	**100**
Puttalam	9	318	0	9	0	1	0	0	0	4	9	143	1	25	0	1	0	0	7	73	1	37	1	13	21	80	**100**	**100**
Anuradhapura	10	289	0	21	0	6	0	3	0	15	22	222	2	14	0	7	0	0	2	144	1	39	13	280	6	99	**78**	**100**
Polonnaruwa	10	106	1	9	0	3	0	1	1	3	8	100	0	1	1	13	0	0	8	76	0	7	12	157	3	32	**100**	**91**
Badulla	12	299	2	16	0	6	0	3	0	0	7	146	2	13	0	19	0	0	14	175	1	33	1	14	13	97	**88**	**100**
Monaragala	22	363	1	9	0	3	0	0	0	4	17	302	2	22	1	7	0	0	1	67	2	22	7	70	2	38	**100**	**100**
Ratnapura	273	1607	2	70	1	5	0	3	2	22	34	667	2	16	0	3	0	1	9	195	2	57	1	69	8	155	**90**	**100**
Kegalle	38	507	4	37	1	5	3	7	3	25	33	272	0	7	1	7	0	0	15	333	2	45	0	14	9	104	**82**	**100**
Kalmunai	12	206	0	14	0	1	0	0	0	12	1	48	0	1	0	1	0	0	3	72	0	11	0	0	2	51	**92**	**100**
SRILANKA	**129**	**18067**	**25**	**537**	**7**	**104**	**3**	**53**	**20**	**459**	**284**	**4407**	**25**	**593**	**6**	**117**	**1**	**4**	**196**	**3730**	**26**	**613**	**68**	**1147**	**213**	**3097**	**92**	**99**

Source: Weekly Returns of Communicable Diseases (esurvillance.epid.gov.lk). T=Timeliness refers to returns received on or before 18th Apr, 2025 Total number of reporting units 361 Number of reporting units data provided for the current week: 358 C**-Completeness

A = Cases reported during the current week. B = Cumulative cases for the year.

Table 2: Vaccine-Preventable Diseases & AFP

26th – 02nd May 2025 (18th Week)

Disease	No. of Cases by Province									Number of cases during current week in 2025	Number of cases during same week in 2024	Total number of cases to date in 2025	Total number of cases to date in 2024	Difference between the number of cases to date in 2025 & 2024
	W	C	S	N	E	NW	NC	U	Sab					
AFP*	00	00	00	00	00	0	01	00	00	02	02	21	30	-30%
Diphtheria	00	00	00	00	00	00	00	00	00	00	00	00	00	0 %
Mumps	00	00	00	00	00	01	03	00	01	05	09	81	102	-20.5 %
Measles	00	00	00	00	00	00	00	00	00	00	04	01	204	-99.5%
Rubella	00	00	00	00	00	00	00	00	00	00	00	01	01	-0%
CRS**	00	00	00	00	00	00	00	00	00	00	00	01	00	0 %
Tetanus	00	00	00	00	00	00	00	00	00	00	00	02	02	0 %
Neonatal Tetanus	00	00	00	00	00	00	00	00	00	00	00	00	00	0 %
Japanese Enceph-alitis	00	00	00	00	00	00	00	00	00	00	00	04	01	300 %
Whooping Cough	00	00	00	00	00	00	00	00	00	00	02	12	06	100 %

Key to Table 1 & 2

Provinces: **W**: Western, **C**: Central, **S**: Southern, **N**: North, **E**: East, **NC**: North Central, **NW**: North Western, **U**: Uva, **Sab**: Sabaragamuwa.

RDHS Divisions: **CB**: Colombo, **GM**: Gampaha, **KL**: Kalutara, **KD**: Kandy, **ML**: Matale, **NE**: Nuwara Eliya, **GL**: Galle, **HB**: Hambantota, **MT**: Matara, **JF**: Jaffna, **KN**: Killinochchi, **MN**: Mannar, **VA**: Vavuniya, **MU**: Mullaitivu, **BT**: Batticaloa, **AM**: Ampara, **TR**: Trincomalee, **KM**: Kalmunai, **KR**: Kurunegala, **PU**: Puttalam, **AP**: Anuradhapura, **PO**: Polonnaruwa, **BD**: Badulla, **MO**: Moneragala, **RP**: Ratnapura, **KG**: Kegalle.

Data Sources:

Weekly Return of Communicable Diseases: Diphtheria, Measles, Tetanus, Neonatal Tetanus, Whooping Cough, Chickenpox, Meningitis, Mumps., Rubella, CRS,

Special Surveillance: AFP* (Acute Flaccid Paralysis), Japanese Encephalitis

CRS =**Congenital Rubella Syndrome

NA = Not Available

Take prophylaxis medications for leptospirosis during the paddy cultivation and harvesting seasons.

It is provided free by the MOH office / Public Health Inspectors.

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