

Diagnosing Shrimp Allergy: A Systematic Review and Meta-Analysis of Skin Prick Test, Specific IgE, and Basophil Activation Test

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Singapore General Hospital.**ADMINISTRATIVE INFORMATION****Support** - No support.**Review Stage at time of this submission** - Preliminary searches.**Conflicts of interest** - None declared.**INPLASY registration number:** INPLASY202670060**Amendments** - This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 17 July 2026 and was last updated on 17 July 2026.**INTRODUCTION**

Review question / Objective Despite a growing primary literature, the diagnostic accuracy of these modalities for shrimp allergy has not been systematically consolidated. This review aims to synthesise the diagnostic accuracy of investigations used in the diagnosis of shrimp allergy, to characterise the sources of heterogeneity in reported performance, and to identify the principal gaps limiting reliable diagnosis.

Rationale Despite the clinical importance of shellfish allergy, its diagnosis remains disproportionately difficult. This is contributed by limitations in accuracy of existing investigations of sensitisation together with challenges in conducting resource intensive oral food challenge. This review aims to further elucidate the principal gaps in clinical practice.

Condition being studied Shrimp/prawn allergy.**METHODS**

Participant or population Adults with suspected IgE-mediated shrimp allergy, undergoing diagnostic evaluation.

Intervention Oral food challenge (double blind placebo controlled food challenge (DBPCFC) or open food challenge) as the reference diagnostic standard. Other tests demonstrating sensitisation such as: Skin prick test (SPT) — commercial extract and/or prick-to-prick with raw/cooked shrimp; Serum specific IgE (sIgE) — whole-extract and/or component-resolved diagnostics (e.g. tropomyosin); Basophil activation test (BAT).

Comparator Patients who have a negative oral food challenge.

Study designs to be included Cross-sectional or cohort studies.

Eligibility criteria Studies reporting diagnostic accuracy data for at least one index test for shrimp

allergy against a food challenge reference standard. Exclude case reports, narrative reviews, conference abstracts without full data and studies without a challenge-based reference standard.

Information sources Online databases.

Main outcome(s) Outcome measures of each diagnostic modality to be evaluated: sensitivity, specificity, positive/negative predictive value, likelihood ratios and diagnostic odds ratio.

Quality assessment / Risk of bias analysis QUADAS2.

Strategy of data synthesis Systematic analysis and meta-analysis.

Subgroup analysis If possible, we will stratify based on geographic factors.

Sensitivity analysis Not applicable.

Language restriction Only English studies included.

Country(ies) involved Singapore.

Keywords shrimp allergy; diagnosis; systematic review; meta-analysis; skin prick test; serum IgE; basophil activation test.

Contributions of each author

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