Discussing the omalizumab option in a shared decision-making conversation with food allergy patients

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Learning Objectives

- Discuss omalizumab and evidence for food allergy
- Discuss shared decision making in the context of treatment of food allergy and the use of omalizumab
- Discuss questions patients and families may have when starting omalizumab as a treatment option.

PBL: ALEX, A 26-year-old with food allergy and recurrent anaphylaxis

- **Reaction History**
- Multiple accidental exposures since childhood
- Prior reactions variable; some required ED care and epinephrine (not self-administered)
- **Past year:** increased reaction **frequency and severity**
  - Symptoms: GI discomfort, generalized hives
  - **Three ED visits** for reactions
  - Most recent episode required **2 doses of epinephrine**, IV fluids, and oxygen
- All reactions attributed to **milk cross-contamination**

PBL: ALEX, A 26-year-old with food allergy and recurrent anaphylaxis

- **Preparedness & Risk**
- Often forgets epinephrine auto-injector
- Not confident in how to use it properly and is hesitant to self-inject
- **Prior Workup**
- PCP visit 3 months ago
- Food IgE panel: **milk-specific IgE = 0.38 IU/mL**
- Referred to Allergy/Immunology for evaluation
- negative to egg, peanut, soy, tree nuts, shellfish, and fish (all < 0.10 IU/ml)

What is shared decision making?

Shared decision-making (SDM) has been traditionally defined as a collaborative approach by which, in partnership with their clinician, patients are encouraged to think about the available care options and the likely benefits and harms of each, to communicate their preferences, and help select the best course of action that fits these.

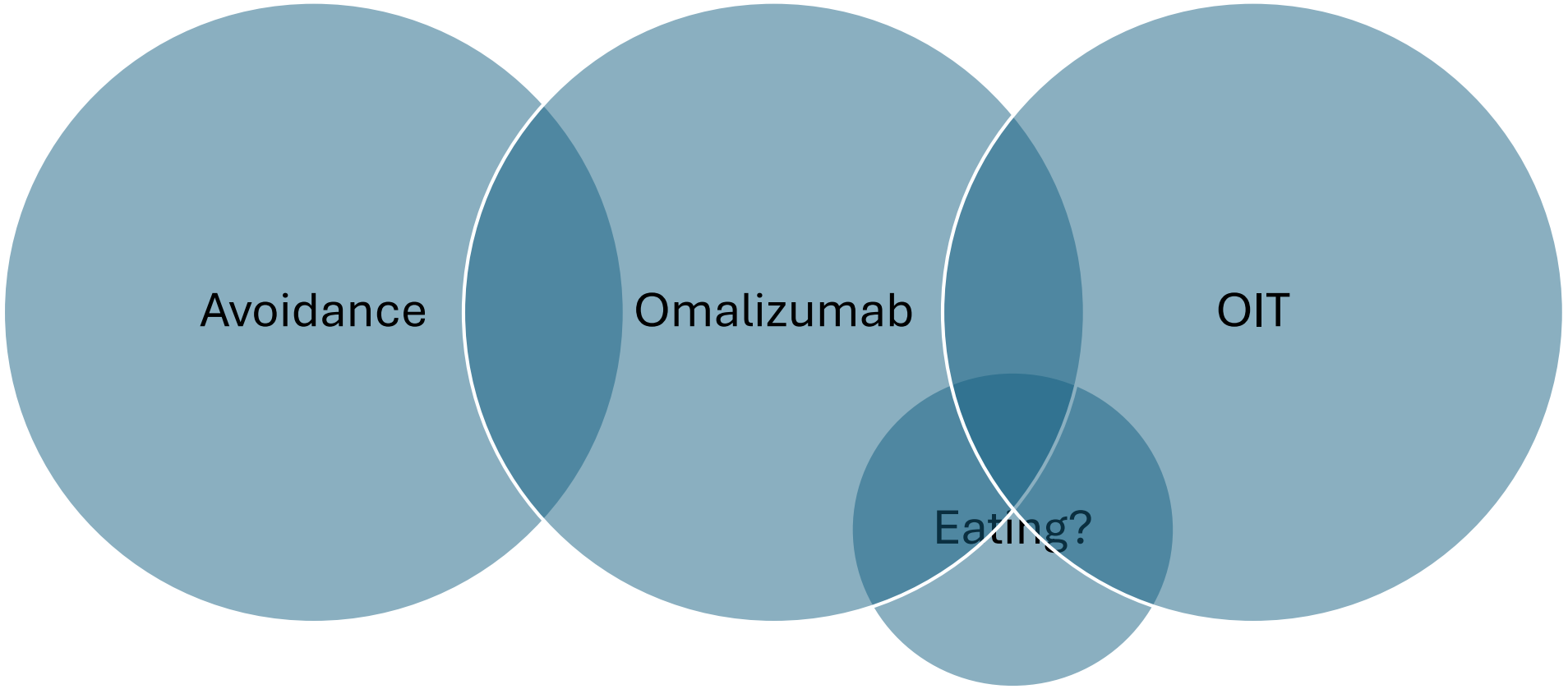
BMJ 2012;344:e256.doi:10.1136/bmj.e256

Steps for shared decision-making (SDM) in practice

1. Foster a conversation
   - Key elements: problem definition, iteration, co-creation
2. Purposefully select and adapt the SDM process
   - Matching preferences
   - Reconciling conflicts
   - Problem-solving
   - Meaning making
3. Support SDM
   - Protect the space
   - Make the most of participation
   - Deploy useful tools
   - Advocate for care
4. Evaluate and learn SDM
   - Evaluate beyond outcomes
   - Share the evaluation
   - Seek joint improvement

BMJ Evid Based Med . 2023 Aug;28(4):213-217. doi: 10.1136/bmjebm-2022-112068.

Where does omalizumab fit in?



What has been studied?

- Omalizumab has been studied for the treatment of food allergy both as monotherapy and as an adjunct to OIT

J Allergy Clin Immunol . 2025 Jan;155(1):1-11.

OUtMATCH

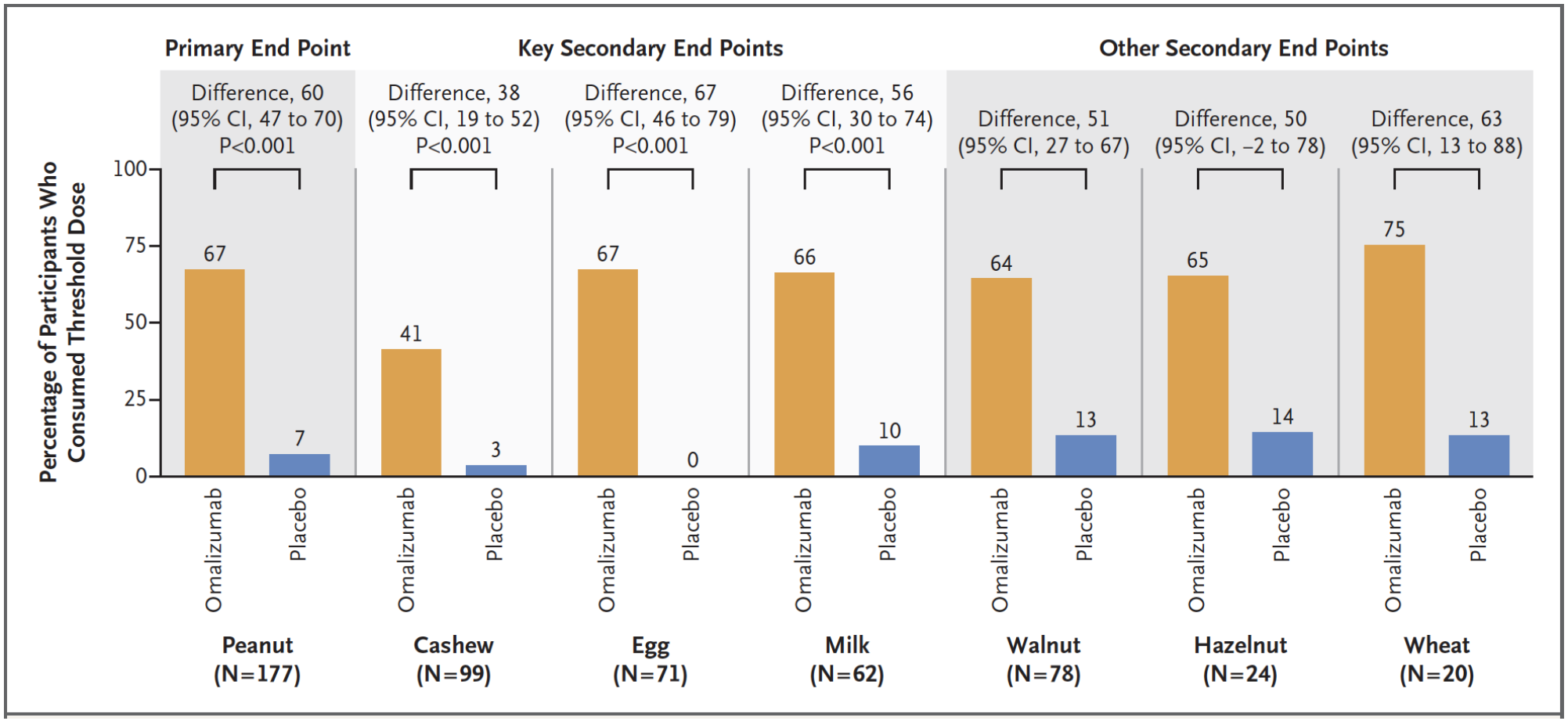
Baseline reactivity:
≤100 mg of peanut protein
≤300 mg of two other foods

→

Randomized
2:1
Oma vs placebo
16 weeks

→

Success:
≥600 mg peanut protein
≥1000 mg of other foods



Wood. NEJM. 2024; doi: 10.1056/NEJMoa2312382

Two patients

Sonya

- 2 years old
- Peanut allergy
- Like playing with cars
- Avoiding everything possible
- Family looking to do anything they can

Ruben

- 15 years old
- Peanut, Cashew/pistachio, and Sesame
- Competitive soccer player
- Extremely aversive to smell of peanut

J Allergy Clin Immunol Pract . 2025 Apr;13(4):731-739.

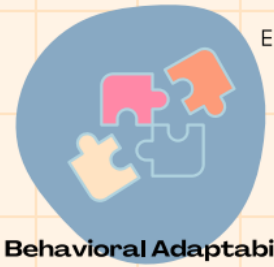
STARTING OIT BEFORE THE AGE OF 5

PROS

Lower Risk of Adverse Reactions:
Lower risk of severe adverse reactions.

Early Improvement in QoL:
Reduces anxiety and limitations associated with FAs, improving the family's QoL sooner.

Potential for Long-Term Remission:
Early intervention may result in SU to allergens, reducing the need for ongoing treatment.

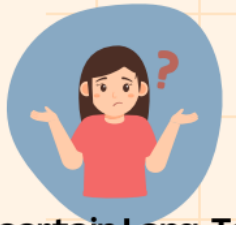


Behavioral Adaptability:
Preschoolers may adapt more easily to the routine of daily OIT dosing and medical visits.

Enhanced Immune System Plasticity:
Younger children have more adaptable immune systems, potentially leading to more effective desensitization.

CONS

Frequent illnesses:
Frequent illnesses in preschool children can disrupt food OIT progress.



Uncertain Long-Term Efficacy:
The long-term benefits and safety of e-OIT are still under study, with the durability of desensitization not fully known.

Future possibility
Would child have naturally outgrown food allergy?

Intensive Parental Involvement:
Requires rigorous management by parents, which can be demanding and stressful.

Developmental Disruptions:
Frequent medical appointments and strict therapy schedules can disrupt a child's routine, affecting social and emotional development.

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STARTING OIT AFTER THE AGE OF 5

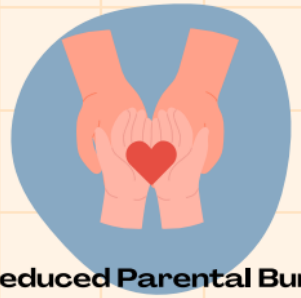
PROS

More Established Research Data:

More clinical data is available for older children, providing clearer insights into potential outcomes and risks.

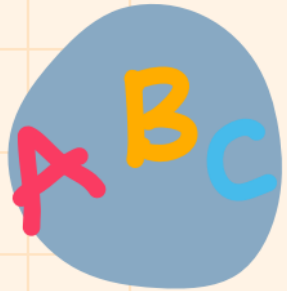
Better Understanding and Compliance:

Older children understand their condition better and are more likely to comply with the therapy regimen



Reduced Parental Burden:

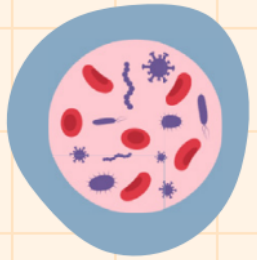
Older children can take more responsibility for their therapy, reducing the burden on parents.



Social and Educational Stability:

Easier to incorporate OIT into the stable routines of older children without significant disruptions.

CONS



Reduced Immune System Plasticity:

Older children's immune systems are less adaptable, potentially making desensitization less likely to lead to SU.

Potential Behavioral Resistance:

Older children might resist the daily routine of OIT, particularly due to increased sports activities being affected, as well as taste aversion and resisting regular medical appointments.

Delayed QoL, Improvements:

Delaying OIT means prolonged restrictions and anxiety related to FAs, affecting social interactions and well-being.

Things to think about.

Selected features of omalizumab for food allergy that are pertinent when considering its use and in SDM for individual patients

Route of administration

- Is patient injection-averse?

Raises reaction threshold variably or, in some cases, not at all

- Is patient likely to have a low threshold that raises concern for safety upon accidental exposure?
- Will patient continue careful allergen avoidance?
- Does patient likely have a risk of a severe allergic reaction to warrant therapy?
- Should patient undergo OFC to determine threshold on treatment?
- Should patient undertake OIT on therapy?
- Route of administration Is patient injection-averse?

What is omalizumab?

- a humanized murine monoclonal antibody that recognizes the Cε3 domain of human IgE, the part of the molecule that binds to mast cell and basophil receptors.
- It binds free IgE, preventing its interaction with the high-affinity IgE receptor (FcϵRI) on mast cells and basophils, thereby reducing their reactivity and the potential for degranulation upon allergen encounter

Int. J. Mol. Sci. 2024, 25(5), 3056

Clin Exp Allergy. (2001) 31:1424–31

Only effective while used, not a curative therapy

- Does age or circumstance of risk (level of supervision for children) support
- the need for treatment “now” vs another stage of life?
- When should therapy be stopped or interrupted?
  - Life changes relevant to risk?
  - To assess natural course?
  - If a food was added to the diet on therapy, will discontinuation result in recurrence of reactions?

Alters allergy test results, affecting monitoring of natural course, the diagnosis of a new allergy, or assessment of current allergy status

- Should OFCs be performed to any foods that may be avoided but not yet identified as allergens prior to initiating therapy?
- Should treatment be halted to assess natural resolution or should an OFC be used to add the food to the diet while on therapy?
- Should OFCs be undertaken to define threshold on treatment to determine degree of efficacy for known allergens?
- Should skin prick tests be done before start of therapy?

Biologic with immune impact, limited use in infants

- Does disease risk align with limited safety data?
- For patients on different immune therapies that have not shown efficacy for food allergy, should omalizumab be added or substituted?

Effective for allergic asthma, other IgE-mediated allergy

- Does patient have comorbid conditions that may also benefit from this treatment?

Are there safety concerns with omalizumab?

Concern	Evidence J Allergy Clin Immunol . 2025 Jan;155(1):31-35.
Anaphylaxis	• Highlighted as a boxed warning. • The frequency of anaphylaxis associated with omalizumab ~0.2%. • Anaphylaxis cases associated with omalizumab found that 72% of reactions occurred within the first 3 doses
Malignancy	• Malignant neoplasms occurred in 0.5% of omalizumab-treated patients versus in 0.2% of controls, and malignancy is listed as a warning/precaution on the omalizumab product label. • Pooled data and EXCELS data suggests that a causal relationship between omalizumab therapy and malignancy is unlikely
Cardiovascular Events	• Imbalance in various CV and cerebrovascular events was observed in those receiving omalizumab - included MI, unstable angina, TIA, PE and/or venous thrombosis, PHTN, ischemic stroke, and cardiovascular-related death. • Pooled analysis from randomized-controlled trials demonstrated that overall IRs of arterial thrombotic events per 1000 patient-years of observation time were 2.7 (95% CI = 0.88-6.3) for omalizumab-treated patients vs 2.4 (95% CI = 0.65-6.1) in placebo-treated patients; analysis limitations restrict the ability to exclude small differences in risk
Infections	• The omalizumab product label states that patients at high risk for geohelminth infections should be monitored while receiving omalizumab. • Overall, there are insufficient data to clearly draw any conclusions regarding the risks of geohelminth infections in those receiving omalizumab.

Decisional Perspectives From OUtMATCH Team

TABLE II. Example scenarios that may indicate more or less favorable candidates for omalizumab therapy (assuming age and dosing criteria met)

Examples of patient scenarios possibly not favoring treatment	Examples of patient scenarios possibly favoring treatment
Infant, toddler with an allergy likely to be transient	Multiple and/or persistent food allergies
Infant, toddler with allergy amenable to alternative approaches	Single or few food allergies with impactful avoidance behaviors
Patient who has been undertaking avoidance successfully and without significant lifestyle impact, or a mild allergy or allergy treatable by control of cofactors (pollen—food allergy syndrome, food-associated exercise-induced anaphylaxis)	Single or few food allergies with allergic comorbidities that may benefit from treatment (eg, asthma, chronic urticaria, chronic rhinosinusitis with nasal polyps)
Patients with higher reaction threshold(s) that place them at reduced risk of accidental ingestion reaction/significant reaction by accidental ingestion	Past severe reactions or increased risk of severe reactions (severe asthma, reactions to trace exposures, hereditary α tryptasemia)
Allergy to a food that has been easy for the patient to avoid	Avoidance of foods like milk, egg, wheat, and sesame may be far more difficult—and limiting to day-to-day life—than foods like peanut or tree nuts Multiple reactions despite careful avoidance even if single food Life circumstances increasing risk (eg, frequent international travel, traveling to location where avoidance would be difficult because of language barriers and/or absence of labeling laws or access to emergency medical care may be compromised) Allergy(ies) to foods not covered by labeling laws
Patient already on successful OIT	Chronic gastrointestinal symptoms with allergen ingestion during OIT and/or development of eosinophilic esophagitis preventing adherence to OIT regimen
Patient with anxiety that results in avoidance behaviors or anxiety-related symptoms not related to allergic reactions or sufficient risk (consider mental health support and counseling)	Significant anxiety or QoL burden deemed rectifiable through therapy

J Allergy Clin Immunol Pract . 2024 Nov;12(11):2947-2954.

What’s the role of challenge?

- When to challenge?
- How much to challenge?