

When is an allergy to an antibiotic really an allergy?

When a patient has an uncertain history of antibiotic allergy consider the following:

1. Is it more likely that they experienced an allergic reaction, a delayed immune reaction, an adverse effect or an intolerance (Table 1)?
2. Could their symptoms have been caused by another factor, e.g. the illness or another medicine?
3. Have they tolerated the same antibiotic since the initial event?

Antibiotic allergy most commonly occurs in people aged 20 – 49 years. Penicillin is the most frequent antibiotic class allergy, followed by sulfonamides and tetracyclines. Parenteral administration of antibiotics is associated with a higher risk of allergic reaction than oral administration. Allergic reactions can occur after a single or multiple exposures, therefore prior tolerance of an antibiotic does not exclude an allergy.

If a patient has a convincing history of an allergic reaction to an antibiotic, there is no need for laboratory investigation; confirmation of the allergy would not change management. Testing for antibiotic allergies is theoretically possible, but it is not available for all antibiotics in New Zealand and the results can be difficult to interpret.

A clinically significant IgE-mediated allergic reaction to an antibiotic, e.g. urticarial rash, is likely, but not inevitable, to reoccur on re-exposure and in some cases this will be more severe, e.g. anaphylaxis. Deliberate re-exposure to the same antibiotic is not recommended unless there are no alternative options and the patient is supervised in hospital. If a patient has a history of intolerance or adverse effects the severity of the previous event and the likely benefit of treatment should be considered before prescribing the antibiotic again. If the patient has a history of a delayed hypersensitivity reaction re-challenge may be possible, depending on the nature of the reaction. People with an allergy to one antibiotic can react to structurally similar antibiotics, e.g. sensitivity to cephalosporins in patients allergic to penicillin, but this is rare.


 For further information, see: "When is an allergy to an antibiotic really an allergy", BPJ 68 (Jun, 2015).



Table 1: Typical features of an allergy, delayed immune reaction, adverse effect or intolerance to antibiotics

Allergy	Delayed immune reactions	Adverse effect	Intolerance
<p>An immunological reaction (IgE-mediated) that is usually rapid in onset (e.g. within one to two hours) and may include:</p> <ul style="list-style-type: none"> ■ Urticaria ■ Angioedema ■ Bronchospasm ■ Anaphylaxis <p>These reactions usually reoccur with subsequent exposure to the antibiotic and may attenuate over time or persist for a lifetime.</p>	<p>May occur several days after exposure (usually IgG-mediated). More often seen in patients with intercurrent infections, e.g. Epstein-Barr virus. Macular, papular or morbilliform rash are common examples. Usually does not occur upon subsequent exposure to the antibiotic when the patient is well.</p> <p>N.B. rash caused by viral infection can often be mistaken for an allergic reaction to antibiotics</p>	<p>A predictable reaction to an antibiotic, e.g. diarrhoea, nausea and vomiting following treatment with amoxicillin</p>	<p>A sensitivity reaction that does not involve the immune system. Dependent on patient susceptibility and pharmacology of the medicine. May be an exaggerated adverse effect or an adverse effect not normally associated with the antibiotic, e.g. tinnitus following treatment with amoxicillin.</p>