# IMMUNOLOGY

## National Referral Guidelines

| NATIONAL REFERRAL GUIDELINES : IMMUNOLOGY | | | |
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| **Diagnosis** | **Evaluation** | **Management Options** | **Referral Guidelines** |
| **PRIMARY IMMUNODEFICIENCY**<br>• Primary immunodeficiency should be suspected in any patient with recurrent or persistent infection or unusual infection.<br>• Recurrent sinopulmonary infections such as recurrent otitis media unresponsive to grommets, recurrent sinusitis, recurrent pneumonia.<br>• Persistent gastrointestinal disease such as chronic diarrhoea or failure to thrive, recurrent or persistent giardiasis.<br>• Unusually persistent or recurrent staphylococcal infections e.g. of nasal cavities or eyelids or osteomyelitis.<br>• Difficult to eradicate oral thrush in the absence of a predisposing factor.<br>• Any infant from a family with known immune deficiency | • Confirmation of specific types of infections by culture or other laboratory tests<br>• Full blood count (with reference to age related ranges)<br>• Measurement of serum immunoglobulins (with reference to age related ranges).<br>***Note:*** *normal immunoglobulin levels do not exclude immunodeficiency.*<br>• Serum glucose<br>• HIV serology<br>• Chest x-ray | • If immunodeficiency is suspected, prompt specialist assessment is essential.<br>• Infants suspected of suffering from immunodeficiency should be discussed urgently with a specialist.<br>***Note:*** *Blood transfusion or vaccinations could be life threatening* | • Refer to Paediatrician, Immunologist or physician with specialist interest. |
| • Bronchiectasis – consider in any patient with chronic productive cough, especially in children or adults in the absence of a significant smoking history | • As above | • Specialist assessment is essential. | • Refer to Paediatrician, Immunologist, Respiratory physician or physician with a special interest. |
| **ISOLATED ANGIOEDEMA** | • C1 inhibitor and complement levels<br>• Consider ACE inhibitor withdrawal | • Treat as for urticaria<br>• May need adrenaline and prednisone if severe<br>• Purified C1inh concentrate is of proven value for respiratory tract obstruction and abdominal crises. C1 inhibitor concentrate for surgery and dental prophylaxis.<br>• Fresh frozen plasma if C1 inh concentrate is not available. | Patients with C1 inhibitor deficiency should be under the care of an immunologist |

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| **LATEX ALLERGY** | | | |
| **Suspected latex allergy – Type 1 (IgE mediated)** | • History of urticaria/angioedema/ wheeze or anaphylaxis following suspected latex contact e.g. contact with rubber gloves, balloons, condoms, urinary catheters or suspected inhalation of latex particles<br>***Note**: At risk groups include*<br>*1. Health care workers especially operating theatre staff*<br>*2. Patient having undergone multiple procedures/operations especially urinary catheterisation (spina bifida)*<br>*3. Contact dermatitis to latex products*<br>*4. Occupational exposure e.g. rubber worker*<br>*5. Atopy* | • If associated with anaphylaxis provide patient with and educate in the use of parenteral adrenaline<br>• A suspected diagnosis needs support of either positive prick skin tests to latex or positive serum latex specific IgE.<br>• Advise on avoidance of latex products especially the use of powdered latex gloves.<br>*Document for management options:*<br>***www.nz.org.nz/library/gl_complete/anaesth_latex/index.cfm#contents*** | • All patients suspected of latex allergy should be referred to a Dermatologist or Immunologist for confirmation of the diagnosis and education. (Desensitisation therapy has not been tested as a therapeutic option) |
| **Suspected latex allergy – contact sensitivity** | • History of contact dermatitis with latex containing product e.g. rubber gloves, balloons, condoms.<br>***Note:** At risk group as for immediate sensitivity. Patients with contact sensitivity are at high risk of latex immediate type hypersensitivity* | • Avoidance of latex products.<br>• Use of alternative products.<br>***Note:** The availability of alternatives may vary depending on local features* | • All patients should be referred for assessment by a Dermatologist if there are occupational implications to the diagnosis or the patient is resistant to treatment |
| **VENOM ALLERGY** | | | |
| **Insect venom allergy** | History: detailed history of allergic reaction, including nature of insect, timing of onset, type of symptoms, treatment given and H/O previous reactions. | **Emergency treatment:** As for Anaphylaxis<br>For large local reactions early treatment with antihistamines and steroids is useful. | • All patients with systemic reactions should be referred.<br>• Patients who have experienced cardio-respiratory symptoms during a systemic reaction to an insect sting are likely to be offered **desensitisation.** Patients who have had skin symptoms only (eg urticaria/angioedema) require assessment and self-treatment medications, but may not require desensitisation.<br>• Large local reactions are not treated with desensitisation. Referral is not necessary |

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| **ANAPHYLAXIS** | History and examination, plus detailed history of allergic reaction including symptoms of hypotension, respiratory obstruction, abdominal cramps, history of drug treatment.<br><br>Determine if there were any triggering factors (foods, stings, exercise, drugs esp NSAIDS, latex or blood products). Many cases are idiopathic.<br><br>If diagnosis is uncertain, serum tryptase levels* 1-2 hours after onset of symptoms.<br><br>Identify factors conferring higher risk of death; asthma, cardiovascular disease, beta blocker or MAO inhibitor therapy, pregnancy (fetal death)<br><br>* 5ml clotted tube | • If a trigger is found, avoid if possible eg drugs, foods, exercise<br>• Reduce risk of severe reaction eg changing from beta Blockers.<br>• Desensitisation for insect stings<br>*(see venom guidelines)*<br>• Teach patients to self administer injectable adrenaline<br>• Instruct when to use adrenaline<br>• Advise caregivers (if child) when to administer adrenaline<br>• Consider Medic Alert bracelet<br><br>**Adrenaline Intramuscular dosage**<br>• From immunisation handbook<br>Adrenaline 1:1000: 0.01ml/kg to maximum 0.5ml(ie 10 mcg/kg adrenaline)<br>If weight unknown:<br>0-6 months 0.05ml<br>7-23 months 0.1ml<br>2 years 0.2ml<br>3 years 0.3ml<br>4 years 0.4ml<br>5 years 0.5ml<br>• or EPIPEN Jr (0.15 mg adrenaline) children 10-20 kg<br>• EPIPEN (0.3 mg adrenaline) for children >20 kg and adults | Referral to Allergy service for<br>• Investigation and education |

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| **ANTIBIOTIC ALLERGY** | History and examination, plus detailed history of allergic reaction (precise details about any rash including timing of onset and nature, plus other features of reaction) | • Patients with drug-induced anaphylaxis or Stevens Johnson syndrome should not receive the offending drug again.<br>• Patients with serum sickness due to cefaclor should not receive further courses of cefaclor but may receive other cephalosporins and penicillins.<br>• Non urticarial erythematous rashes e.g. Maculopapular rashes to a ß-lactam (penicillin or cephalosporin) are not IgE mediated. While the current course should be discontinued it may be possible for patients to receive future courses of b-lactam drugs. As a precaution the initial dose should be given under supervision.<br>• Penicillin skin testing is rarely indicated, as penicillin is seldom the only appropriate antibiotic. Penicillin testing is indicated for patients with a history suggesting penicillin allergy in whom a penicillin is the only appropriate antibiotic.<br>• In other situations alternate antibiotics should be used. Penicillin skin testing should not be done to satisfy the curiosity of patient, parent or doctor. | Patients with multiple drug allergies should be referred for evaluation. |
| **CHRONIC URTICRIA / ANGIOEDEMA**<br>(>6 weeks duration) | Standard history and examination, plus detailed history of urticaria. Seek features suggestive of anaphylaxis including hypotension, respiratory obstruction, abdominal cramps. History of drug therapy.<br>Identify those who may have urticarial vasculitis for early referral eg persistent lesions > 24 hours, bruising, haematuria, purpura.<br>Determine if there were any aggravating factors (foods, drugs esp NSAIDS, ACE inhibitors, exercise, cold induced). | • If a trigger is found, avoid if possible eg drugs, foods, exercise, NSAIDS, Progesterone.<br>• Commence on regular antihistamines. If unresponsive, increase dose or change antihistamines.<br>• Consider addition of H2 blocker and continue if effective.<br>• One 7-14 day course of oral steroids.<br>• If not responding discuss with specialist.<br>• Early referral for features of vasculitis<br>• If cold induced, warn of dangers of swimming/diving into cold water. | Patients who cannot be controlled with regular antihistamines alone<br>Anyone with suspected vasculitis |

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| **FOOD ALLERGY** | • History and examination, including detailed history of allergic reaction (timing of onset, nature and severity of reaction, therapy required, reproducibility of reaction).<br>• Food allergy tests (skin or RAST) may not be diagnostic of food allergy because of the high frequency of false positive reactions.<br>• Negative tests are reassuring that the food is not implicated in causing IgE mediated allergy. | • Patients with a history of anaphylaxis or immediate hypersensitivity reactions should be referred for confirmation of diagnosis, and home adrenaline education/"action plan" and dietician review if needed.<br>• Most food allergy in children is transient – follow-up including food challenge may be required to determine if the allergy has been outgrown. Food challenge should not be undertaken without resources for resuscitation.<br>• Patients with multiple food intolerance (which may or may not be allergic in nature) should be referred for evaluation and possible food challenges | • Children should be referred to Paediatric Immunology or General Paediatrics depending on service availability<br>• Adults should be referred to Allergy or General Medicine, but with multiple food intolerance referral to Gastroenterology may be more appropriate. |
| **Eczema ? food allergy** | • History and examination, plus detailed history of any allergic reactions and of eczema precipitants and therapies.<br>• Food allergy tests (skin or RAST) may not be diagnostic of food allergy because of the high frequency of false positive reactions. | • Food allergy plays a role in some eczema, particularly in early childhood. Evaluation may be worthwhile in young children with severe or difficult to control eczema | • Children should be referred to Paediatric Immunology or General Paediatrics depending on service availability<br>• Adults should be referred to Allergy or General Medicine |
| **Egg allergy requiring vaccination** | | • People with egg allergy can safely receive MMR vaccine. If there is concern about administering then referral for administration under hospital supervision should be made.<br>• Influenza vaccine is contraindicated for people with egg allergy. | Referral to Paediatric or Adult services as appropriate. |

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| **RHINITIS** | | | |
| **Seasonal Rhino-conjunctivitis** | • History, including months affected, symptoms, known triggers.<br>• Examination<br>• Investigations may include Skin Prick Test (or RAST) to confirm relevant allergens | • Avoidance advice<br>• Usual treatments include regular nasal corticosteroids commencing pre-seasonally, oral antihistamines, topical antihistamines, topical mast cell stabilisers eye drops. Short term oral steroids may be useful. | • For severe, uncontrolled symptoms<br>• For consideration of initiation of desensitisation |
| **Perennial rhino-conjunctivitis** | • History, including symptoms, known triggers.<br>• Examination<br>• Investigations include Skin Prick Test (or RAST) to confirm atopy and determine specific allergens | • Avoidance advice (eg house dust mites, household pets)<br>• Usual treatments include regular nasal corticosteroids, oral or topical antihistamines, anti-allergic eye drops.<br>• When rhinorrhoea dominates consider nasal ipratropium | • For severe, uncontrolled symptoms<br>• For consideration of initiation of desensitisation<br>• If nasal blockage is the major symptom consider ENT referral<br>• If conjunctivitis is severe consider Opthalmologist referral |
| **Recurrent rhino-sinusitis** | • History<br>• Examination<br>• Investigations include Skin Prick Test (or RAST) to determine atopy, immunoglobulins, CBC. | • Treat allergic rhinitis if present<br>• Early treatment of episodes with decongestants, antibiotics. May need prolonged courses of antibiotics | • For those with poor response to treatment<br>• For identified or suspected immune deficiency. |
| **ASTHMA** | • Most child asthmatics (>80%) and a significant proportion of adult asthmatics >70% are atopic. Many of these patients will have other allergic conditions (rhinitis, eczema, food allergy).<br>• Specific allergens may contribute to chronic asthmatic symptoms and to acute flares.<br>• Assessment of allergy to aeroallergens by skin prick testing may identify potential triggers of asthma, and avoidance of these allergens may improve asthma control.<br>• There is debate about the use of immunotherapy for patients with asthma; there is some evidence of its benefit, but it is not without risk. | • Skin prick testing for aeroallergens (particularly indoor aeroallergens) may give useful information for atopic asthmatics with significant/ongoing symptoms.<br>• Environmental advice (e.g. dust mite control, cat avoidance) may be provided on the basis of skin prick test results. Appendix 1 | • Patients with atopic asthma in whom desensitisation may be useful should be evaluated by an allergist/ immunologist for consideration of safe and appropriate desensitisation. |

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# Appendix 1

## ADDITIONAL DUST MITE INFORMATION

### How to try and reduce dust mite exposure:

- Your biggest exposure to dust mites is in your bed, so this is probably the best place to start.
- The mattress, base and pillows should be totally encased by special dust mite covers. Duvets should also be covered, or it washable see below.
- Dust mites are killed by heat.
- All bedding used on top of mite covers should be washed each 1-2 weeks.
- A hot water wash (>55°C) will kill the dust mites and remove the allergen.
- If hot washing is not possible then putting dry garments using a hot cycle in the dry >60 minutes) may also kill the mites after routine washing.
- Soft toys should either be hot-washed regularly, or mites can be killed if the toy is put in the freezer (in a plastic bag) for 24 hours.
- Keep “clutter” to a minimum so surfaces can be damp wiped regularly.
- If possible avoid having carpet on the floor.

**Contact your local Asthma Society or Allergy Awareness Association NZ Inc (email mail@allergy.org.nz).**