Allergen immunotherapy: How to Perform Desensitisation in Your Practice

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ENT Surgeon, Auckland City Hospital
Participant poll

In the past year have you:

a. Initiated sub cutaneous immunotherapy (no specialist review)  
   Yes / No

b. Initiated sub cutaneous immunotherapy (at specialist suggestion)  
   Yes / No

c. Continued specialist initiated sub cutaneous immunotherapy  
   Yes / No

d. Initiated sub lingual Staloral drops  
   Yes / No

e. Initiated sub lingual Oralair tablets  
   Yes / No
Allergen immunotherapy

• Why
  – What conditions it works for

• What
  – Which allergens

• When
  – What age, what season

• Safety and Who
  – Which patients, which doctor
  – Who not - exclusions

• How
  – Subcutaneous SCIT versus Sublingual SLIT
A patient

- 12 year old boy
- Increasing symptoms over 5 years
  - Perennial congestion, daily sneezing, nasal and ocular itch, coryza, interrupts sleep
  - No seasonal variability noted
  - No obvious symptoms with cats and dogs
- Allergy skin test
  - Histamine 6mm
  - Saline 0mm
  - D pteronyssinus 8mm
  - Grass mix 7mm
  - Cat 3mm
  - Dog 0mm
  - Plantain 0mm
  - Birch 0mm
- Should he have immunotherapy?
Classifying his rhinitis

**Intermittent**
- $< 4 \text{ days / week}$
- or $< 4 \text{ weeks / year}$

**Persistent**
- $4 \text{ days / week}$
- and $> 4 \text{ weeks / year}$

**Mild**
All of the following:
- Normal sleep
- No impairment normal activities
- Normal work and school attendance
- No troublesome symptoms

**Moderate – severe**
1 or more of:
- Affects sleep
- Impairment normal activities
- Affects work and school attendance
- Troublesome symptoms
Should he have immunotherapy

1. Does he have a condition that responds to immunotherapy?

2. Are the allergens clinically important?

3. Has treatment been optimised and what are the results
Should he have immunotherapy

1. Does he have a condition that responds to immunotherapy?
   - Allergic rhinoconjunctivitis, allergic asthma

2. Are the allergens clinically important?
   - Symptoms on exposure and relevant specific IgE
   - Caution in primary care
   - Poor response to Rx, side effects
   - Potentially risky

3. Has treatment been optimised and what are the results
## Immunotherapy: Quality of Evidence for Efficacy

<table>
<thead>
<tr>
<th>Condition</th>
<th>Adult</th>
<th>Paediatric</th>
</tr>
</thead>
<tbody>
<tr>
<td>SCIT asthma</td>
<td>High</td>
<td>Moderate</td>
</tr>
<tr>
<td>SCIT rhinoconjunctivitis</td>
<td>Moderate</td>
<td>Moderate</td>
</tr>
<tr>
<td>SLIT asthma</td>
<td>High</td>
<td>High</td>
</tr>
<tr>
<td>SLIT rhinoconjunctivitis</td>
<td>Moderate</td>
<td>Moderate</td>
</tr>
<tr>
<td>Eczema</td>
<td>Some</td>
<td></td>
</tr>
<tr>
<td>Venom</td>
<td></td>
<td>High</td>
</tr>
</tbody>
</table>

[2](http://effectivehealthcare.ahrq.gov/)
Venom

Table 2. Risk of Anaphylactic Reactions to Hymenoptera Stings after an Initial Event.

<table>
<thead>
<tr>
<th>Patient History*</th>
<th>Approximate Risk of Anaphylaxis (%)†</th>
<th>Immunotherapy If Skin Test or In Vitro Test Is Positive for Antibodies</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unknown history</td>
<td>3</td>
<td>No</td>
</tr>
<tr>
<td>Large local reactions</td>
<td>10</td>
<td>No</td>
</tr>
<tr>
<td>Cutaneous anaphylaxis in child</td>
<td>10</td>
<td>No</td>
</tr>
<tr>
<td>Systemic anaphylaxis in child</td>
<td>50–60</td>
<td>Yes</td>
</tr>
<tr>
<td>Anaphylaxis in adult</td>
<td>50–60</td>
<td>Yes</td>
</tr>
<tr>
<td>Receiving immunotherapy</td>
<td>2</td>
<td>Not applicable</td>
</tr>
</tbody>
</table>

Honeybee Apis mellifera
Paper wasp Polistes species
Yellow jacket Vespula species

NEJM 2005
Venom immunotherapy

Sturm 2002
Venom immunotherapy

- All patients with systemic reactions to insect sting should be referred for consideration of investigation and immunotherapy
  - Children most often to local paediatrics
  - Adults may need referral to subspecialist immunology services (Auckland, Wellington, Christchurch)
- Build up phase in hospital
- Most often transferred back to primary care for maintenance
  - Generally 5 years treatment
- Extracts funded on special authority
  - Beware – one special authority for wasp, but two venoms available
- Don’t forget ACC
Should he have immunotherapy

1. Does he have a condition that responds to immunotherapy?
   - Allergic rhinoconjunctivitis, allergic asthma

2. Are the allergens clinically important?
   - Symptoms on exposure and relevant specific IgE

3. Has treatment been optimised and what are the results?
   - Poor response to Rx, side effects
Relevant allergens

• The patient
  – Year round symptoms
  – No seasonal change, no problems cats and dogs

• Allergy skin test
  Histamine 6mm  Saline 0mm
  D pteronyssinus 8mm  Grass mix 7mm
  Cat 3mm  Dog 0mm
  Plantain 0mm  Birch 0mm

• Dust mite the clinically relevant symptom
  – Grass and cat sensitised but no compatible history
  – If pursue immunotherapy -> D pteronyssinus only
### NZ seasonal allergens

<table>
<thead>
<tr>
<th></th>
<th>Jun</th>
<th>Jul</th>
<th>Aug</th>
<th>Sept</th>
<th>Oct</th>
<th>Nov</th>
<th>Dec</th>
<th>Jan</th>
<th>Feb</th>
<th>Mar</th>
<th>Apr</th>
<th>May</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grasses</td>
<td></td>
<td></td>
<td></td>
<td>light blue</td>
<td>dark purple</td>
<td>dark purple</td>
<td>light blue</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Plantain</td>
<td></td>
<td></td>
<td></td>
<td>light blue</td>
<td>light blue</td>
<td>light blue</td>
<td>light blue</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Birch</td>
<td></td>
<td></td>
<td></td>
<td>light orange</td>
<td>light orange</td>
<td>light orange</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Olive</td>
<td></td>
<td></td>
<td>light green</td>
<td>dark green</td>
<td>light green</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mould</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>pink</td>
<td>pink</td>
<td>pink</td>
</tr>
</tbody>
</table>

- Big, sticky, insect carried pollens generally less effective allergens (e.g., pine, privet)
- North–south gradient in onset / offset grass pollen season
- Birch allergen more potent further from equator – more symptomatic birch allergy in Christchurch than Auckland
1. Does he have a condition that responds to immunotherapy?

2. Are the allergens clinically important?

3. Has treatment been optimised and what are the results
   a. Avoidance
   b. Medication

   - Allergic rhinoconjunctivitis, allergic asthma
   - Symptoms on exposure and relevant specific IgE
   - Think about immunotherapy if poor response to Rx, side effects, patient preference
Allergen avoidance

- [www.allergy.org.au](http://www.allergy.org.au) allergen avoidance information
  - Paucity of evidence about house dust mite avoidance measures

- Cat
- Pollen
# Medications

<table>
<thead>
<tr>
<th></th>
<th>Sneezing</th>
<th>Itch</th>
<th>Congestion</th>
<th>Coryza</th>
<th>Eye sx</th>
</tr>
</thead>
<tbody>
<tr>
<td>Antihistamine po</td>
<td>++</td>
<td>++</td>
<td>+/-</td>
<td>++</td>
<td>++</td>
</tr>
<tr>
<td>Antihistamine nasal</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>-</td>
</tr>
<tr>
<td>Nasal steroid</td>
<td>++</td>
<td>++</td>
<td>+++</td>
<td>++</td>
<td>+</td>
</tr>
<tr>
<td>Leukotriene modifier</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td>Decongestant (po or nasal)</td>
<td>-</td>
<td>-</td>
<td>++</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Nasal cromolyn</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>-</td>
</tr>
<tr>
<td>Ipratropium</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>+++</td>
<td>-</td>
</tr>
</tbody>
</table>
Medications

Mild intermittent

Nasal Cromolyn

Moderate-severe intermittent

Intranasal steroid

Oral or topical non sedating H1 antagonist

Nasal decongestant (<3 days) or oral decongestant

Ocular cromolyn or ocular antihistamine/cromolyn for ocular symptoms

Allergen and irritant avoidance

Mild-moderate persistent

Immunotherapy

Severe persistent
Medication

Patient name: ____________________________

Plan prepared by: Dr ______________________ Signed: ______________________

Date: ______________________

ALLERGEN MINIMISATION

Minimising exposure to confirmed allergen/s may assist some individuals in reducing allergic rhinitis symptoms. Patient education resources on allergen avoidance or minimisation is available on the ASCIA website: www.allergy.org.au/patients/allergy-treatment/allergen-avoidance

MEDICATIONS

☐ Intranasal corticosteroid spray: ________
   1 or 2 times/day/nostril for _______ weeks or _______ months or ☐ continuous
   Additional instructions: ____________________________

1. Prime the spray device according to manufacturer’s instructions (for the first time or after a period of non-use).
2. Shake the bottle before each use.
3. Blow nose before spraying if blocked by mucus.
4. Tilt head slightly forward and gently insert nozzle into nostril.
   Use right hand for left nostril (and left hand for right nostril).
5. Aim the nozzle away from the middle of the nose and direct nozzle into the nasal passage (not upwards towards tip of nose, but in line with the roof of the mouth).
6. Avoid sniffing hard during or after spraying.

Note: Onset of benefit may take days, so this treatment must be used regularly. It does not have to be stopped every few weeks. If significant pain or bleeding occurs contact your doctor.

☐ Oral non-sedating antihistamine: ____________ Dose ______ mL/mg ☐ 1 or ☐ 2 times/day
   or ☐ as needed
   Additional instructions: ____________________________

☐ Intranasal antihistamine sprays: ____________ 1 or ☐ 2 times/day or ☐ as needed
   Additional instructions: ____________________________

☐ Saline nasal spray or irrigation ____________ ______ times/day or ☐ as needed
   ☐ Use 10 minutes prior if used in conjunction with intranasal corticosteroid spray

☐ Decongestant: ______ nasal spray or tablet. Dose ______ mL/mg ______ times/day for up to 5 days (not more than 1 course/month)

☐ Other medications:

Patient survey – how satisfied are you with treatment with your nasal steroid spray (of those using spray within past 4 weeks)

Allergiesinasiasiapacific.com
A patient

- 12 year old boy
- Increasing symptoms over 5 years
  - Perennial congestion, daily sneezing, nasal and occular itch, coryza
  - No seasonal variability noted, no obvious symptoms with cats and dogs

Dust mite avoidance measures in place
Regular oral antihistamine without good effect
Nasal steroid but doesn’t like using them, poor compliance

- Should he have immunotherapy?
Need to decide

- SCIT or SLIT
  - Adverse effects
  - How often they should be taking SCIT or SLIT
    - When to start?
      - Not during pollen season for grass desensitisation
  - How long they can expect to take SCIT or SLIT
  - The costs of SCIT and SLIT
- Contraindications?
- If SCIT who will give
  - Role of primary care in build up versus maintenance
## SCIT vs SLIT

<table>
<thead>
<tr>
<th></th>
<th>SCIT</th>
<th>SLIT</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Given</strong></td>
<td>Under doctor supervision</td>
<td>1&lt;sup&gt;st&lt;/sup&gt; dose at doctors</td>
</tr>
<tr>
<td><strong>Allergens</strong></td>
<td>Venom and aeroallergen</td>
<td>Aeroallergens</td>
</tr>
<tr>
<td><strong>Age</strong></td>
<td>&gt;5 years</td>
<td>&gt;5 years</td>
</tr>
<tr>
<td><strong>Duration</strong></td>
<td>3 years for aeroallergens</td>
<td>3 years</td>
</tr>
<tr>
<td></td>
<td>3-5 years for venom</td>
<td></td>
</tr>
<tr>
<td><strong>Side effects</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Minor</td>
<td>N/A</td>
</tr>
<tr>
<td></td>
<td>• Large local swelling</td>
<td>+/-</td>
</tr>
<tr>
<td></td>
<td>• Severe reaction</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Anaphylaxis</td>
<td>Up to 0.4% injections</td>
</tr>
<tr>
<td></td>
<td>• Severe anaphylaxis</td>
<td>1:1,000,000 injections</td>
</tr>
<tr>
<td></td>
<td>• Fatality</td>
<td>1:2,500,000 injections</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Extremely rare</td>
</tr>
<tr>
<td></td>
<td></td>
<td>None to date</td>
</tr>
<tr>
<td></td>
<td></td>
<td>None to date</td>
</tr>
</tbody>
</table>
## SCIT and SLIT contraindications

<table>
<thead>
<tr>
<th></th>
<th>SCIT</th>
<th>SLIT</th>
<th>Why</th>
</tr>
</thead>
<tbody>
<tr>
<td>Significant asthma</td>
<td>+</td>
<td>+/-</td>
<td>Increased risk severe reaction</td>
</tr>
<tr>
<td>ACE inhibitor</td>
<td>+/-</td>
<td>-</td>
<td>Increased risk of reaction</td>
</tr>
<tr>
<td>B blocker</td>
<td>+</td>
<td>+</td>
<td>Impaired ability to treat anaphylaxis</td>
</tr>
<tr>
<td>&lt;5 years</td>
<td>+</td>
<td>+</td>
<td>Limited studies and likely poorly tolerated</td>
</tr>
<tr>
<td>Pregnancy</td>
<td>+</td>
<td>+</td>
<td>Don’t initiate, continue maintenance at specialist advice</td>
</tr>
<tr>
<td>Oral disease</td>
<td>-</td>
<td>+</td>
<td>Increased local reactions</td>
</tr>
</tbody>
</table>
SCIT options

- Alustal® (Stallergenes, EBOS)
- Registered with Medsafe
- Not funded
- Alum adsorbed -> delayed absorption of the allergen -> reduce the risk of local and systemic allergic reactions
  - Dust mite, pollens (grass, weed, trees), animal danders
- Ordered on named patient basis
- In liquid suspension already
- Stored refrigerated 4-8°C; use vaccine thermometer
## SCIT options

<table>
<thead>
<tr>
<th></th>
<th>Phostal®</th>
<th>Pangramin plus ®</th>
<th>Alutard SQ®</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Medsafe</strong></td>
<td>X Section 29</td>
<td>X Section 29</td>
<td>X Section 29</td>
</tr>
<tr>
<td><strong>PHARMAC</strong></td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td><strong>Adsorbed on</strong></td>
<td>Calcium phosphate</td>
<td>Aluminium hydroxide</td>
<td>Aluminium hydroxide</td>
</tr>
<tr>
<td><strong>From</strong></td>
<td>Stallergenes (EBOS)</td>
<td>ALK (NZMS)</td>
<td>ALK (NZMS)</td>
</tr>
<tr>
<td>Week</td>
<td>Injection</td>
<td>Vial (concentration)</td>
<td>Volume</td>
</tr>
<tr>
<td>--------</td>
<td>-----------</td>
<td>----------------------------</td>
<td>--------</td>
</tr>
<tr>
<td>W1</td>
<td>1</td>
<td>0.1 IR/mL or 0.1 IC/mL</td>
<td>0.10</td>
</tr>
<tr>
<td>W2</td>
<td>2</td>
<td>(Yellow cap)</td>
<td>0.20</td>
</tr>
<tr>
<td>W3</td>
<td>3</td>
<td></td>
<td>0.40</td>
</tr>
<tr>
<td>W4</td>
<td>4</td>
<td></td>
<td>0.80</td>
</tr>
<tr>
<td>W5</td>
<td>5</td>
<td>1 IR/mL or 1 IC/mL</td>
<td>0.10</td>
</tr>
<tr>
<td>W6</td>
<td>6</td>
<td>(Green cap)</td>
<td>0.20</td>
</tr>
<tr>
<td>W7</td>
<td>7</td>
<td></td>
<td>0.40</td>
</tr>
<tr>
<td>W8</td>
<td>8</td>
<td></td>
<td>0.80</td>
</tr>
<tr>
<td>W9</td>
<td>9</td>
<td>10 IR/mL or 10 IC/mL</td>
<td>0.10</td>
</tr>
<tr>
<td>W10</td>
<td>10</td>
<td>(Blue cap)</td>
<td>0.20</td>
</tr>
<tr>
<td>W11</td>
<td>11</td>
<td></td>
<td>0.40</td>
</tr>
<tr>
<td>W12</td>
<td>12</td>
<td></td>
<td>0.60</td>
</tr>
<tr>
<td>W13</td>
<td>13</td>
<td></td>
<td>0.80</td>
</tr>
<tr>
<td>W14</td>
<td>14</td>
<td></td>
<td>0.80</td>
</tr>
<tr>
<td>W15</td>
<td>15</td>
<td></td>
<td>0.80</td>
</tr>
<tr>
<td>W16</td>
<td>16</td>
<td></td>
<td>0.80</td>
</tr>
<tr>
<td>W23</td>
<td>Maintenance Therapy</td>
<td>10 IR/mL or 10 IC/mL (Blue cap)</td>
<td>Maximum tolerated dose</td>
</tr>
</tbody>
</table>
REQUIREMENTS FOR ADMINISTERING SCIT

• Staff to monitor the patient for _____ minutes after injection (minimum of 30 minutes)
• 1:1000 adrenaline ampoules, 23G needles, 1mL syringes or adrenaline autoinjector for intramuscular administration of adrenaline
• Needles for subcutaneous administration of allergen - suggest insulin syringes or 26/27G needles and 1mL syringes
• Other equipment (IV cannula, IV 0.9% saline, oxygen, sphygmomanometer)
• Equipment to maintain an airway appropriate for supervising physician’s expertise and skill
• Oral non-sedating antihistamines and oral corticosteroids

A medical practitioner must be on-site during the administration and entire waiting period
Check patient

- Check patient has been attending on schedule and whether the patient had any reaction following the last injection.
- Check patient and defer injection if:
  - Systemically unwell and/or febrile (>38°C)
  - Asthma symptoms and/or peak flow <80% best prior to injection
- Do not give injection and contact specialist if:
  - Patient now pregnant
  - Patient commenced on B-blockers (including topical) or ACE inhibitors
  - Anaphylaxis with most recent immunotherapy injection
- Ensure recent weight (kg) available to calculate adrenaline dose in case patient has anaphylaxis
- Double check (doctor/nurse and patient/guardian) correct allergen, concentration, dose and expiry date

- Document HR and BP at baseline each injection
- Check temperature if unwell
- Problems / unwell / unsure -> don’t give
Check allergen

• Double check (i.e. doctor, nurse, patient/parent)
  – Correct allergen (for patient)
  – Correct concentration
  – Correct dose
  – Vial not expired

• Ensure extract is gently but thoroughly mixed prior to injecting (sediment may occur when stock sits between use)

• Document for each injection given
  – Date given
  – Time given
  – Allergen, concentration and dose injected
  – Injection site (i.e. left arm - allergen, right arm – allergen)
Giving SCIT injection

**Administration**

- Ensure extract is gently but thoroughly mixed prior to injecting.
- Ensure sterile technique (allow alcohol to dry before injection).
- Recommend using insulin syringe: if not available use 26/27G needles and graduated 1 mL syringes.
- Use middle third of posterior upper outer arm, pull the skin up and inject at 45° by deep subcutaneous route in the posterior aspect of the middle third of the arm.
- Gently draw back plunger before injecting: if blood appears, withdraw the needle and select a new site (This is different to vaccination technique).
- Inject slowly and do not massage the injection site.
- Either arm may be used and could be alternated: if two injections are required, use both arms.
- Document date, time, dose and site of administered injection(s).

- New vial -> first dose at 50% maintenance then as per protocol.
- May require reduced doses for pollen SCIT during pollen season.
SCIT side effects

MANAGEMENT OF ADVERSE REACTIONS

Symptomatic local swelling – consider ice pack, oral non-sedating antihistamine and/or paracetamol
Mild or moderate systemic reaction (e.g. rhinitis, flushing, urticaria) – oral non-sedating antihistamine and observe until resolution of symptoms
Severe systemic reaction: If any one of the following signs of anaphylaxis are present, lay patient flat (or if breathing difficulty allow to sit), give 1:1000 adrenaline IMI (0.01mg/kg to a maximum of 0.5mg), call ambulance, and then administer ancillary treatment

- Difficult/noisy breathing
- Swelling of tongue
- Swelling/tightness in throat
- Difficulty talking and/or hoarse voice
- Wheeze or persistent cough
- Persistent dizziness or collapse
- Hypotension
- Abdominal pain

Ancillary treatment may be given after adrenaline. IV/IM promethazine should not be used as can worsen hypotension and cause muscle necrosis.

- Anaphylaxis flow chart on wall (eg NZ resus council version)
- Calculate dose adrenaline dose for each patient
After SCIT care

- Observation minimum of 30 minutes post-injection
  - Longer periods with additional risk factors such as venom, previous reactions, asthma, reaction).
- Repeat peak flow (if asthmatic) prior to discharge
  - Some patients may be unaware of or ignore changes in lung function.
- Patient should avoid exercise, hot baths, sauna, application of local heat or rubbing after immunotherapy injection due to increased risk of side effects.
Dose adjustments

• Discuss with allergist for advice
  – Following anaphylaxis - refer back to allergist
  – With mild-moderate allergic reactions such as generalised welts/flushing; may need dose reduction
  – Missed doses - there are no studies to provide guidance for dose adjustments if unscheduled gaps

• Also need to consider dose reduction for
  – New vials for maintenance injections (fresh vials may be more potent, so that in some cases the dose should be reduced)
  – Frequent large local reactions
  – During high pollen seasons in those receiving pollen SCIT

• A SCIT treatment plan should be provided by the clinical immunology/allergy specialist for each patient
| **Patient name:** | ___________________________ | **Date:** ___________________________ |
| **Date of birth:** | ___________________________ | **Signature:** ______________________ |
| **Referring specialist name:** | ___________________________ | **Contact phone number of referring specialist:** ___________________________ |
| **Allergen(s):** | ___________________________ | **Projected duration of immunotherapy (years):** ___________________________ |
| **Planned completion date:** | ___________________________ |

**DOSING SCHEDULE** (specialist to attach to this document)

**Requirements for Administering SCIT**

- Staff to monitor the patient for _____ minutes after injection (minimum of 30 minutes)
- 1:1000 adrenaline ampoules, 23G needles, 1mL syringes or adrenaline autoinjector for intramuscular administration of adrenaline
- Needles for subcutaneous administration of allergen - suggest insulin syringes or 26/27G needles and 1mL syringes
- Other equipment (IV cannula, IV 0.9% saline, oxygen, sphygmomanometer)
- Equipment to maintain an airway appropriate for supervising physician’s expertise and skill
- Oral non-sedating antihistamines and oral corticosteroids

A medical practitioner must be on-site during the administration and entire waiting period

**Patient Checklist**

- Check patient has been attending on schedule and whether the patient had any reaction following the last injection
- Check patient and defer injection if:
  - Systemically unwell and/or febrile (>38°C)
  - Asthma symptoms and/or peak flow <80% best prior to injection
- Do not give injection and contact specialist if:
  - Patient now pregnant
  - Patient commenced on B-blockers (including topical) or ACE inhibitors
  - Anaphylaxis with most recent immunotherapy injection
- Ensure recent weight (kg) available to calculate adrenaline dose if case patient has anaphylaxis
- Double check (doctor/nurse and patient/guardian) correct allergen, concentration, dose and expiry date

**Administration**

- Ensure extract is gently but thoroughly mixed prior to injecting
- Ensure sterile technique (allow alcohol to dry before injection)
- Recommend using insulin syringes: if not available use 26/27G needles and graduated 1 mL syringes
- Use middle third of posterior upper outer arm, pull the skin up and inject at 45° by deep subcutaneous route in the posterior aspect of the middle third of the arm
- Gently draw back plunger before inserting: if blood appears, withdraw the needle and select a new site (This is different to vaccination technique)
- Inject slowly and do not massage the injection site
- Either arm may be used and could be alternated: if two injections are required, use both arms
- Document date, time, dose and site of administered injection(s)

For information on management of adverse reactions and recommended actions see page 2 of this treatment plan.

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SCIT treatment plan

ASCIA TREATMENT PLAN FOR SUBCUTANEOUS ALLERGEN IMMUNOTHERAPY (SCIT) - Page 2 of 2

Patient name: ____________________________ Date of birth: ____________________________

MANAGEMENT OF ADVERSE REACTIONS

Symptomatic local swelling - consider ice pack, oral non-sedating antihistamine and/or paracetamol
Mild or moderate systemic reaction (e.g. rhinitis, flushing, urticaria) - oral non-sedating antihistamine and observe until resolution of symptoms
Severe systemic reaction: If any one of the following signs of anaphylaxis are present, lay patient flat (or if breathing difficulty allow to sit), give 1:1000 adrenaline IM/L (0.01mg/kg to a maximum of 0.5mg), call ambulance, and then administer ancillary treatment
  • Difficult/noisy breathing
  • Swelling of tongue
  • Swelling/tightness in throat
  • Difficulty talking and/or hoarse voice
  • Wheeze or persistent cough
  • Persistent dizziness or collapse
  • Hypotension
  • Abdominal pain

Ancillary treatment may be given after adrenaline. IV/IM promethazine should not be used as can worsen hypotension and cause muscle necrosis.

RECOMMENDED ACTIONS

If at any stage you are uncertain about what dose to administer, always call a specialist to discuss.

Missed doses during build-up phase (> 14 days since last injection):

<table>
<thead>
<tr>
<th>Missed doses</th>
<th>Repeat previous dose*</th>
<th>OR</th>
<th>Missed doses</th>
<th>Reduce by one dose*</th>
<th>OR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Missed 1 dose</td>
<td></td>
<td></td>
<td>Missed 2 doses</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Missed 3 doses</td>
<td></td>
<td></td>
<td>Missed 4 doses</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Missed 4 doses</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Once dose is given, then next dose should be as per the dosing schedule provided by the specialist
If < 14 days since last injection, give next dose as per schedule

Missed doses during maintenance phase (> 5 weeks since last injection):

<table>
<thead>
<tr>
<th>Missed doses</th>
<th>Reduce by 25%*</th>
<th>OR</th>
<th>Missed doses</th>
<th>Reduce by 50%*</th>
<th>OR</th>
<th>Missed doses</th>
<th>Reduce by 75%*</th>
<th>OR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Missed 1 dose</td>
<td></td>
<td></td>
<td>Missed 2 doses</td>
<td></td>
<td></td>
<td>Missed 3 doses</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Missed 4 doses</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Once dose is given, then next dose should be as per the dosing schedule provided by the specialist
If < 5 weeks since last injection, give next dose as per schedule

New vial (maintenance dose)

<table>
<thead>
<tr>
<th>No reduction in dose</th>
<th>Reduce first injection by ____% and then continue with regular maintenance dose if tolerated</th>
</tr>
</thead>
</table>

Large local reaction** (> 10 cm)

<table>
<thead>
<tr>
<th>No reduction and continue with next scheduled dose</th>
<th>Repeat same dose at next visit (during up-dosing) and continue with next scheduled dose</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reduce next injection by ____% and then continue with next scheduled dose</td>
<td></td>
</tr>
</tbody>
</table>

**If ongoing or repeated problems, contact specialist

Additional instructions: ____________________________
Staloral® (Stallergenes from EBOS)

- Liquid extracts of dust mite, pollens (grass, weeds, trees), animal danders and moulds
- Store in refrigerator at 4-8°C
- Unregistered, section 29, unfunded

- Hold under tongue x 2 minutes
- Then swallow

- Stallergenes through EBOS
- 4-6 week delivery
Staloral\textsuperscript{®} dosing

- Standardised allergens eg house dust mite 300 IR/ml

\begin{tabular}{|c|c|c|c|c|c|c|}
\hline
Day & 1 & 2 & 3 & 4 & 5 & \multirow{2}{*}{6} \\
\hline
Vial & Blue & Blue & Blue & Blue & Blue & Purple \\
\hline
No of presses & 1 & 2 & 3 & 4 & 5 & \multirow{2}{*}{1} \\
\hline
Completed & & & & & & 2 \\
\hline
\end{tabular}

- Non standardised allergens eg cat 100 IC/ml

\begin{tabular}{|c|c|c|c|c|c|c|}
\hline
Day & 1 & 2 & 3 & 4 & 5 & \multirow{2}{*}{6} \\
\hline
Vial & Blue & Blue & Blue & Blue & Blue & Red \\
\hline
No of presses & 1 & 2 & 3 & 4 & 5 & \multirow{2}{*}{1} \\
\hline
Completed & & & & & & 2 \\
\hline
\end{tabular}
Oralair® (Stallergenes from EBOS)

- Sublingual tablets contain a mix of grasses (Cocksfoot, Sweet vernal grass, Rye grass, Meadow grass and Timothy)
- Store at room temperature
- Registered with Medsafe, not funded

- Day 1  1 x 100 IR tablet
  2  2 x 100 IR tablets
  3  1 x 300 IT tablet and continue

- Under tongue 2 minutes then swallow
- Rx July -> December x 3 years
Taking SLIT

• First dose under medical supervision
  – Then at home
• Take in the morning on an empty stomach
  – Do not eat/drink for 15 minutes (will interfere with oral absorption)
• The liquid has a sweet/salty/oily taste; tablets have a chalky taste

• Common side effects: local itching, lip/tongue swelling, sore throat, abdominal pain
  – Can premedicate with anthistamine; mostly at initiation
• Anaphylaxis rarely described
  – Inform re s&s and need to seek urgent medical attention
SLIT Contraindications

Sublingual immunotherapy treatment is not suitable for everyone. In particular anyone suffering from the following:

- Severe and/or unstable asthma
- Oral inflammation: ulcers, fungus infections
- Malignant diseases (i.e. cancer)
- Severe immune deficiency or auto-immune deficiency
- Beta-blocker co-medications (such as treatments for blood pressure/heart disease)

When to temporarily interrupt your treatment?

Some situations can interfere with the continuation of your treatment. Consult with your doctor who will advise when to interrupt and recommence your treatment:

- Side effects
- Vaccinations
- High temperature/fever – over 38°C
- Asthma attack
SLIT precautions

**Oral surgery** including teeth removal – you should stop taking your treatment for 7 days to allow healing. Restart with the same dosage as you were taking previously. If the interruption period is longer, please consult with your doctor before restarting your treatment.

**Sodium Chloride:** a vial of your treatment contains 590mg of Sodium Chloride – if you or your child are on a low sodium diet, please consult with your doctor immediately.

**Intensive** itching of the palm of your hand or soles of your feet, hives, swelling of the tongue or throat, sore throat leading to difficulty in swallowing, breathing or voice modification - contact your doctor immediately and stop your treatment.

**Children** under 5 years - this treatment is not suitable

What to do if you have a reaction after taking your treatment?
If you experience any side effects/reactions, contact your doctor immediately and stop your treatment.

What happens in case of an overdose?
If a higher dosage is taken instead of the recommended daily dose – there is a risk of side effects. For further advice and instructions, contact your doctor immediately and phone:
<table>
<thead>
<tr>
<th></th>
<th>SCIT</th>
<th>SLIT</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Per annum as example</td>
<td>Single allergen (product only)</td>
</tr>
<tr>
<td>SCIT</td>
<td>Alustal®</td>
<td>$400</td>
</tr>
<tr>
<td></td>
<td>Alutard®</td>
<td>$800</td>
</tr>
<tr>
<td></td>
<td>Pangramin®</td>
<td>$600</td>
</tr>
<tr>
<td></td>
<td>Phostal®</td>
<td>$400</td>
</tr>
<tr>
<td>SLIT</td>
<td>Oralair®</td>
<td>$700</td>
</tr>
<tr>
<td></td>
<td>Staloral®</td>
<td>$960</td>
</tr>
</tbody>
</table>

Plus:
- Doctor / nurse costs
- Time off work
- Travel
Resources

• Allergy Shots and Allergy Drops for Adults and Children
  
  http://effectivehealthcare.ahrq.gov/

• E-learning www.allergy.org.au
  • Rhinitis
  • Immunotherapy
  • Anaphylaxis

• ADHB brochures
  • Venom and aeroallergen SCIT
How to perform desensitisation in your practice

• Decide if you want to
  – Allergy special interest GP group newly established
  – Get some experience
  – Western Sydney post grad diploma

• Set some parameters
  – Non asthmatic
  – Dust mite, grass, grass/plantain, cat

• Think about competencies
  – E learning anaphylaxis, rhinitis, immunotherapy
  – Medical and nursing staff

• Set protocols and procedures