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Information
FOR HEALTH PROFESSIONALS

Aeroallergen Immunotherapy
A Guide for Clinical Immunology/Allergy Specialists

This document supersedes information contained in the 2015 ASCIA Allergen Immunotherapy Manual. It has been updated by the ASCIA Immunotherapy Working Party and extracted into this separate Guide.

ASCIA Immunotherapy Working Party members are listed on the ASCIA website www.allergy.org.au/members/committees#wpim

ASCIA resources are based on published literature and expert review.

ASCIA health professional document references are at www.allergy.org.au/hp/papers

Abbreviations

AIT	Allergen immunotherapy
AlOH	Aluminium hydroxide (Alum)
AR	Adverse reaction
BAT	Basophil activation tests
CCD	Common carbohydrate determinants
DBPC	Double blind placebo controlled
DF	Dermatophagoides farinae
DP	Dermatophagoides pteronyssinus
FDA	Food and Drug Administration (USA)
GMP	Good manufacturing practice
HDM	House dust mite
HSA	Human Serum Albumin
IgE	Immunoglobulin E
IgG	Immunoglobulin G
IDT	Intradermal test
IT	Immunotherapy
LLR	Large local reaction
MCT	Mast cell tryptase
NSP	Normal saline with phenol
PBS	Pharmaceutical Benefits Scheme, AU
Pharmac	Pharmaceutical Management Agency, NZ
PRP	Pathogenesis-related protein
OAS	Oral allergy syndrome
QOL	Quality of life
RCT	Randomised controlled trials
sIgE	Allergen specific IgE
SCIT	Subcutaneous immunotherapy
SLIT	Sublingual immunotherapy
SOTI	Specific oral tolerance induction
SPT	Skin prick test
SR	Systemic reactions
TGA	Therapeutic Goods Administration, AU

Contents

1. AIMS OF AEROALLERGEN IMMUNOTHERAPY

In most patients who are allergic to aeroallergens, AIT reduces, but does not eliminate, allergic reactions to aeroallergens.

The aims of AIT are to:

- Reduce symptom severity and medication use in allergic rhinitis and allergic asthma. This may lead to improvement of QOL, improved functional capacity at work and school, reduced absenteeism and presenteeism, and reduced hospital admissions for asthma.
- Improve tolerance to allergen exposure.
- Possibly reduces the risk of new allergic sensitisations in patients.
- Possibly reduces the risk of asthma development in patients with allergic rhinoconjunctivitis.

2. PATIENT AND ALLERGEN ASSESSMENT/SELECTION

AIT may be considered as a therapeutic option only when all of the following criteria are met.

The patient:

- Has an allergic disorder that has been shown to benefit from AIT.
- Has clinical evidence of a relationship between allergen exposure and symptoms.
- Has specific IgE to the relevant allergenic trigger (shown by blood sIgE test or SPT).
- Is able to give informed consent and a commitment to adhere to treatment course (for child parent/guardian).
- Has no absolute contraindications to AIT.
- Has allergic disease for which a commercially manufactured allergen extract suitable for AIT is available.
- Is unable (e.g. occupational or social exposures) or unwilling (e.g. pets) to avoid exposure.

Other selection criteria:

- Children over five years of age (current recommendation; related partly to patient acceptability and partly to trials showing benefit in patients five years and older), but this is not an absolute limitation.
- Allergic disease is impacting significantly on QOL.
- Medication is inadequately effective to control symptoms, poorly tolerated, or patient wants to reduce medication use.
- Likelihood of greater adherence to supervised AIT than medication.

3. INDICATIONS, CONTRAINDICATIONS AND PRECAUTIONS

DISEASE-RELATED INDICATIONS

- **Allergic respiratory disease such as allergic rhinitis, allergic asthma**: commonly indicated.
- **Atopic dermatitis:** based on a few high quality studies, AIT in atopic dermatitis is of limited benefit.
- **Oral allergy syndrome (OAS), also known a pollen food syndrome**: AIT is not currently recommended.
- **Nasal polyposis:** there is no evidence that inhalant AIT alters the natural history of nasal polyposis, although co-existing allergic rhinitis may benefit.

CONTRAINDICATIONS AND PRECAUTIONS

Absolute contraindications

- Inability for patient or child's parent/guardian to give informed consent.
- Current or planned pregnancy (contraindication to initiation of AIT only).
  - The major reason for not initiating AIT is the risk of anaphylaxis, which could be dangerous to the foetus (hypotension with reduced placental perfusion, uterine contractions).
  - SCIT is considered to pose a higher risk than SLIT. One trial reported that initiation of SLIT in pregnancy was safe, but this is not yet considered standard of care.
  - Enquiries should be made in all female patients of child-bearing age regarding their plans for pregnancy prior to initiation of AIT.
  - Pregnancy is not a contraindication to continuation of maintenance AIT and most patients who become pregnant during AIT can continue treatment. This should be discussed with the patient's clinical immunology/allergy specialist.

Special considerations/precautions

- **Unstable or poorly controlled asthma** is a significant risk factor for severe adverse reactions to both SCIT and SLIT. An FEV1 of <70% may be considered an absolute contraindication for SCIT.
- **Beta blocker use,** especially non-selective beta blockers, may impede the management of anaphylaxis. Glucagon should be available in addition to adrenaline (epinephrine). The risk/benefit ratio is less likely to be favourable for SCIT with aeroallergens.
- **Advanced age and severe co-morbidity** such as cardiovascular and respiratory disorders which may influence safety.
- **Life-threatening adverse reactions to prior aeroallergen AIT:** SLIT may be considered with caution but anaphylaxis to SLIT, whilst extremely rare, has occurred in people with previous anaphylaxis to SCIT.
- **Eosinophilic Oesophagitis (EOE)** is a contra-indication to SLIT and thus SCIT may be the preferred choice.
- **Patients with arm lymphoedema** (e.g. after cancer surgery), should have injections on the non-affected side.

4. EFFICACY AND OUTCOMES

Assessment of efficacy of inhalant AIT in clinical practice is largely limited to patient reported symptom improvement on allergen exposure and reduction in medication use.

AIT efficacy should be measured between six to twelve months for perennial allergens or after two pollen seasons. If positive results to treatment are found, AIT may continue for three years. After three years AIT can be stopped.

There is currently no objective test or biomarker to establish efficacy. Questionnaires are recommended to improve reporting. Structured questionnaires are available. Visual analogue scales (VAS) have been validated in the assessment of disease severity and response to AIT.

Improvements to be expected include:

- Reduction in the frequency and severity of symptoms (e.g. day to day or during pollen season, or in response to allergen exposure).
- Reduction in the need for/usage of medication.

Patients sometimes report a lack of improvement in symptoms in the absence of medications, but find that allergic symptoms are easier to control with standard medications, whereas medications before treatment were relatively ineffective.

FACTORS INFLUENCING OUTCOMES

There is currently no reliable marker to predict the success of AIT, or duration of benefit once treatment is ceased. Published evidence in allergic rhinitis shows sustained benefit for three years after AIT cessation.

The following factors have been proposed to influence the outcome:

Factor	Comments
Quality of allergen extract.	Adequate concentrations of major allergenic proteins.
Optimisation of choice of allergens.	Dominant or primary sensitising allergen.
Sufficient maintenance dose of allergens.	Efficacy dependent on total cumulative dose and duration. May be influenced by patient tolerance and adherence.
Type of allergen.	Greatest evidence exists for pollen and dust mite extracts.
Patient adherence to AIT.	If there are positive results to treatment, AIT may continue for three years.
Treatment initiation by clinical immunology/allergy specialist.	Specialist initiation and supervision results in more appropriate patient and allergen selection.

Factors associated with premature cessation of an AIT program include:

- Cost.
- Lack of efficacy.
- Efficacy where the patient perceives no need to continue.
- Inter-current illnesses or other interruptions.

Mixing AIT

Simultaneous inhalant AIT to more than one allergen group is effective.

Mixing of more than one allergen in the same bottle can undermine effectiveness for two reasons:

- Mixing may decrease efficacy due to possible dilution effects and proteolytic degradation associated with certain extracts (not recommended).
- Concerns to proteolytic degradation do not apply to allergoids.

There is a theoretical possibility that SLIT allergen extracts administered simultaneously might result in dilution, or saturation of submucosal dendritic cells limiting allergen absorption. Therefore, it is recommended to separate SLIT allergen administration in time (such as morning and night, or separation by 15 to 30 minutes, according to manufacturer instructions).

This may not be the case for specialist formulated aqueous preparations where a full strength of both separate allergens can be included in the extract by reducing the proportion of diluent.

Different brands of extracts, or aqueous and alum absorbed extracts should never be mixed in the same bottle due to unknown risk of compatibility, stability and risk of administration.

5. MODELS OF CARE FOR AEROALLERGEN IMMUNOTHERAPY

Possible models of optimal care to provide AIT include:

SCIT

- Clinical immunology/allergy specialist input into allergen and patient selection.
- Clinical immunology/allergy specialist involvement (through GP or specialist rooms) in up-dosing, maintenance and issues with desensitisation.
- Clinical immunology/allergy specialist close follow up and review of efficacy and adverse effects to prevent unnecessary harm or inappropriate treatment.
- AIT efficacy should be measured between six to twelve months for perennial allergens or after two pollen seasons. If positive results to treatment are found, AIT may continue for three years. After three years AIT can be stopped.

SLIT

- Clinical immunology/allergy specialist initiates; GP continues management including ordering of new extracts; specialist scheduled review.
- Clinical immunology/allergy specialist initiates; specialist scheduled review, and once patient is judged to have benefited, then supplies appropriate paperwork and order forms for ongoing maintenance SLIT to patient and GP.
- Clinical immunology/allergy specialist initiates and orders new extracts, patient review at time of pickup of new extracts; GP informed but no requirement for direct involvement.

Specialist monitoring of AIT is recommended for the following purposes:

- Check for adverse events/reactions.
- Assess efficacy, which should be measured between six to twelve months for perennial allergens or after two pollen seasons. If positive results to treatment are found, AIT may continue for three years. After three years of AIT can be stopped.
- Provide advice regarding adjunctive therapy such as supplementary pharmacological.
- Consider cessation if major adverse events/inadequate efficacy.
- Support maintenance of adherence to course, with information, discussions of efficacy, reminders of maximal long-term remission from completion of full course and manage patient expectations.
- Monitor compliance, adherence and regularity of injections as irregularity may increase risk.
- Monitor factors which increase the risk of treatment, such as inadequate post-injection observation, injections during illness or asthma exacerbation, disregard of other safety advice, new comorbidities or medications.
- Monitor overall adherence with entire course, awareness of premature cessation.
- Discuss, offer or optimise standard pharmacological management of allergic disease for patients who discontinue AIT.
- If treatment is ineffective, consider possible explanations including the development of new allergen sensitivity, or intercurrent non-allergic rhinitis or chronic sinusitis.

AEROALLERGEN SCIT VERSUS SLIT

Efficacy

Both SCIT and SLIT are proven to be efficacious for allergic respiratory disease by numerous RCT and meta-analyses. There has been a focus on clinical trials in SLIT, with many more double-blind-placebo-controlled (DBPC) trials involving larger numbers of subjects compared with older trials of SCIT.

An indirect meta-analysis of 36 SLIT and SCIT studies for treatment of allergic rhinitis in grass pollen allergic patients concluded that SCIT was superior to SLIT in terms of symptom control and medication use.

Adverse Reactions and Safety

SLIT carries a markedly lower rate of significant adverse reactions than SCIT. See table below.

Compliance

Compliance and adherence to a full recommended three-year course of AIT is reported to be low for both SLIT and SCIT. It had been considered that ready acceptability and ease of use would lead to improved adherence to treatment with SLIT compared with SCIT. However, in most studies adherence rates have been reported to be lower.

Table 1: Comparing SCIT with SLIT

Decision points	Injection (SCIT)	Oral (SLIT)	Comment
Treatment location	Medical facilities Travel time to Dr plus wait period.	Home dosing.	SLIT is more convenient.
Safety	Supervised dosing.	Home administration.	SLIT is safer.
Children	Dislike injections.	More acceptable.	SLIT is more acceptable in children.
Waiting period	At least 30 min after injection.	30 min wait after 1st dose with Dr, then home dosing.	SLIT is more convenient.
Cost to patient	Weekly/monthly doctor's consultation fee + transportation costs + time off work.	SLIT requires a higher total allergen dose than SCIT. Cost of SLIT extracts is higher.	SLIT usually more expensive to patient. Total cost must take into account cost of allergen + medical supervision cost.
Allergen strength	Standardised	Tablets are fixed strength dose. Liquid concentrations vary.	Mixing of high and low concentration oral liquid extracts results in them being shipped as a low concentration extract.
Effectiveness	Reduction in symptom scores, medication use, evident within first year.	Reduction in symptom scores, medication use, evident within first year.	Evidence of greater benefit from injections than oral for pollen allergy and dust mite, may favour SCIT.
Pregnancy	Do not start if pregnant; may continue maintenance.	Do not start if pregnant; may continue maintenance.	Both SCIT and SLIT maintenance is considered safe.
Duration	Three years.	Three years.	Long term benefit shown with both SLIT and SCIT.
Regular treatment	Reinforced by having regular appointments.	Home dosing- no reminder to take treatment.	Compliance with SLIT may be more difficult.
Age	≥ Five years	≥ Five years	Young children dislike injections and may dislike oral treatment. Earlier treatment may be effective.
Oral allergy syndrome	Not applicable.	Itchy mouth with dosing.	Injections may be more acceptable.
Side-effects	Very low risk of asthma or anaphylaxis.	Local mouth/throat side-effects; minimal risk of anaphylaxis.	SLIT is safer, relevant in patients with cardiorespiratory disease.
Contraindication	Uncontrolled asthma. EoE Oral inflammatory conditions.	Uncontrolled asthma. EoE Oral inflammatory conditions.	Asthma must be controlled. SCIT is preferred for EoE and oral inflammatory conditions.
Compliance	23% completed three years.	7% completed three years.	>6,000 subjects pharmacy database study.
Registration	Some injectable extracts.	Tablets only.	May influence ability to obtain private health fund rebates.
Medicare rebates	Dr visits only; not for allergen.	No	Cost implications.
Private health fund rebates.	Only some full registered extracts.	Tablets (if registered yes). Oral liquids (rarely.)	Cost implications.
Delivery time	Two to eight weeks.	Tablets are usually immediately available.	Depends if stock is immediately available or needs to be ordered.

6. AEROALLERGEN SLIT

Prescription of SLIT

The decision to recommend AIT to a patient with inhalant allergy is made by the specialist physician and the patient, after consideration of many factors.

The specialist physician must be convinced that the appropriate sensitisations have been confirmed and that optimal medical management has been instituted.

The patient will be committed to at least three years of regular therapy with efficacy only assessable after at least six months of treatment.

Cost, convenience and accessibility to medical care are other factors to be considered before choosing the most appropriate formulation.

Indications for SLIT

As with all AIT, SLIT is indicated for confirmed, type 1, immediate hypersensitivity reactions to inhalant allergens causing rhinoconjunctivitis with or without asthma, either perennial or seasonal in nature.

Contraindications for SLIT include:

- Severe unstable asthma.
- Use of beta-blockers, according to product information; may not be absolute.
- Chronic oral inflammatory disease (e.g. oral lichen planus).
- Eosinophilic Oesophagitis

SLIT PRODUCTS

A list of suppliers can be found on the ASCIA website:

www.allergy.org.au/members/allergen-immunotherapy-information

Types of allergens:

A large number of allergen extracts are available for SLIT. Please consult manufacturers for the full list of available allergen extracts. In general, extracts available within the various major categories of allergens are listed below:

- Pollens
- Mites
- Animals
- Moulds

Formulations

SLIT is available as a solution and as a tablet formulation for a limited number of allergens.

A major decision for the prescribing physician is to select the major relevant allergen/s for a particular patient based on clinical history and some measure of s-IgE sensitisation.

In most rigorous clinical studies of AIT, the treatment is usually conducted with one or a few allergens in the extract. However, in some countries (e.g. USA), mixes of many allergens have been standard practice.

Combined or separate formulations

Reviews of AIT studies reporting the simultaneous administration of more than one unrelated allergen extract suggest:

- Simultaneous delivery by SLIT of multiple unrelated allergens can be clinically effective with appropriate identification of relevant allergens.
- Treatment with adequate doses for a sufficient period of time is essential.
- There is need for additional studies with more than two allergen extracts, particularly using SLIT, where there are currently no adequate studies to assess safety and efficacy.

SLIT SCHEDULES

Commencement of treatment

It is recommended that SLIT should be commenced in a physician's office. There are a small number of reports of anaphylaxis following the first dose of SLIT.

Prior to commencing SLIT, it is important to enquire about:

- New drugs which might require precautions (e.g. beta blockers).
- Active infection (e.g. URTI with fever).
- Active asthma.

You should note the following in the patient record:

- Patient name.
- SLIT manufacturer/formulation.
- Allergens administered.
- Date of commencement.

The patients should be informed of the possible side-effects of SLIT (mainly local) and how to manage them. Specific instructions should be provided to patients regarding the management of adverse reactions, unplanned interruptions in treatment and situations when SLIT should be withheld (see later in section 5.5). Patient information booklets are available from the manufacturers.

SLIT general instructions

Storage	• Check storage requirements as some products require refrigeration.
Expiry	• Always check the expiry date.
Administration	• The first dose must be administered in the doctor's office then the treatment is taken at home. The solution or tablet is placed under the tongue, held for two minutes, and then swallowed. Patients should refrain from eating or drinking after administration for at least 15 minutes.
Dosing	• Some products commence with a short up-dosing phase followed by a maintenance phase. Other products have only one dose.
Precautions	• Do not use the treatment in the following situations: – Presence of uncontrolled or severe asthma (FEV1<70% predicted). – Ongoing Beta blocker treatment (relative contraindication). – Presence of oral inflammatory conditions (e.g. ulcerations, infections). – Recent dental extraction.

For more details and instructions specific to products, refer to Appendix C.

Treatment schedule

AIT is usually continued regularly daily throughout the year for perennial allergens such as HDM.

Pollens may be continued throughout the year or may be administered according to a pre-seasonal regimen.

- For perennial allergens (e.g. HDM) commence treatment at any time of the year and continue regularly daily throughout the year.
- For perennial pollen allergens commence treatment two to four months prior to onset of pollen season and continue daily throughout the year.
- For pre-seasonal pollen commence treatment two to four months prior to onset of pollen season and continue daily for six months (two to four months overlapping with pollen season).

Pre-seasonal regimens for pollen AIT have been shown to have similar efficacy to perennial regimens. In each case treatment is continued for three years, either continuously or pre-seasonally for three consecutive years.

SLIT PRECAUTIONS

Patients should be advised to avoid eating foods that may cause mucosal abrasions or cleaning teeth immediately before administration of SLIT drops, sprays or tablets.

The following factors should lead to omission of the daily dose, or temporary interruption of the course:

- Recent dental treatment with tooth extraction, until healed.
- Inflammation in the mouth (e.g. aphthous ulceration).
- Injury with open wound inside oral cavity.
- Acute febrile illness.
- Acute active asthma (a risk factor for serious adverse reactions).

SLIT SAFETY

Minor adverse reactions

There are some common side effects which can occur with all SLIT preparations. Side effects are generally mild to moderate and do not usually lead to discontinuation of the SLIT program however, account for treatment withdrawal of patients in clinical trials:

- Oral side effects include pruritus, oropharyngeal discomfort, minor swelling under the tongue, and salivary gland discomfort.
- Gastrointestinal side effects are uncommon, but include nausea, abdominal pain, vomiting, and diarrhoea.

Side effects can usually be controlled by temporarily reducing the dose, or by antihistamine premedication.

Itchy mouth usually stops after four to six weeks.

Routine antihistamine premedication in the longer term is not usually required.

Severe adverse reactions

The majority of SLIT adverse events occur at the beginning of treatment. Whilst local oral discomfort is common, local oropharyngeal swelling is rare and significant airway angioedema has only rarely been reported. Exacerbation of asthma has been rarely reported; seven instances in a review of 4,000 patients. Eosinophilic oesophagitis has been reported to develop during SLIT. Several cases of SLIT-related anaphylaxis have been reported, but no fatalities.

Risk factors for the occurrence of SLIT severe adverse events have not yet been established.

- Some factors in the SLIT anaphylaxis case reports are recognised as risk factors for SCIT, such as height of season, history of previous severe reactions, interruption of treatment, dose errors and accelerated schedules.
- Most of the patients with SLIT related significant adverse effects or anaphylaxis had asthma.
- Four patients who had anaphylaxis with SLIT had previously had anaphylaxis with SCIT, and two of these reacted to their first SLIT dose.

SLIT UNRESOLVED ISSUES

There are many aspects of SLIT which still require further investigation and confirmation.

Efficacy aspects include:

- Optimal dose, schedule and allergen formulation.
- Duration of benefit.
- Prevention of new sensitisations and atopic diseases.
- Efficacy for allergens other than pollen and HDM, largely due to the lack of large high quality trial data
- Efficacy with multiple/combination allergens.

Safety aspects include:

- Risks of SLIT in moderate to severe asthma.
- Risks of SLIT in patients who have had anaphylaxis from SCIT.
- Possible SLIT contraindications in patients on Beta blockers or ACE-inhibitors.
- Safety of SLIT in pregnancy.
- Possible risk factors of oral lesions and SLIT leading to significant adverse events.
- How to deal with treatment interruptions, re-starting treatment, and co-seasonal treatment.

7. AEROALLERGEN SCIT

SCIT PRODUCTS

A list of current suppliers is available on the ASCIA website:

www.allergy.org.au/members/allergen-immunotherapy-information

SCIT SCHEDULES

The regimen of delivery of SCIT is divided into two phases:

- The escalation phase/build-up phase, up-dosing, induction or dose-increase phase.
- Maintenance phase.

Maintenance doses are usually determined from manufacturer's instructions or guidelines. Effectiveness of SCIT is related to cumulative allergen dose, therefore maximum safely tolerated dose is the aim.

The target maintenance dose may change depending upon many factors such as whether the patient can tolerate the dose, the allergen in question, and the clinical circumstance.

Table 2.: Examples of typical maintenance doses used.

Allergen	Amount of allergen	Usual volume (concentration)
Aeroallergen (Alustal/Phostal)	8 IR/IC	0.8ml (10IR/IC/ml)
Aeroallergen (Aqueous Std HDM)	500AU	0.5ml (1000AU/ml)

There are many different regimens used during the escalation phase in order to reach the maintenance dose. For example, the up-dosing schedules for allergoids tend to be shorter than for natural allergens. The default option is to use the manufacturer's recommended schedule.

When choosing an escalation regimen, there are many factors to consider:

- **Patient factors:**
  - Patient risk factors/cofactors: patients with severe eczema or asthma may require a more cautious or prolonged escalation particularly if their condition worsens.
  - A history of prior moderate or severe reactions to escalations of SCIT.
  - There is no evidence that patients with a larger SPT wheal size need more cautious dose escalation.
  - In patients considered particularly at risk, commencement at a lower starting concentration (e.g. Alustal bottle 0, or 10-fold lower dilution of aqueous extracts) is warranted.
- **Resource factors:** This includes physician, nursing and facilities availability.

Gradual up-dosing: Should induce clinical tolerance by avoiding acute allergic reactions to SCIT injections. It is not known whether there is a specific immunological effect obtained by the conventional three month up-dosing schedule, beyond the avoidance of reactions.

Maintenance SCIT injections: Generally given every four weeks.

Dose adjustment: There is no standardised approach or evidence base to support dose adjustment for missed SCIT doses, or increased allergen exposure after adverse reactions, or when starting a new maintenance bottle. However, dose reduction has been advocated in the following situations:

- After doses have been missed.
- Where there is increased allergen exposure, such as during the pollen season.
- Where a significant adverse reaction has occurred, such as anaphylaxis or asthma.
- When starting a new maintenance bottle, in case batch to batch variation in potency occurs, some specialists may reduce first dose by 20%.

Suggested actions are in the ASCIA Treatment Plan for SCIT and are available on the ASCIA website.

TYPES OF SCIT REGIMENS

In Australasia aeroallergens are generally administered by conventional regimens. Other regimens are also included in the following table.

Conventional	• One injection per visit; usually weekly but can be up to three times per week; outpatient clinic. • Recommended schedules are usually found on manufacturer's package inserts. • Conventional schedules can be accelerated, even up to daily injections, if there is a clinical need (trying to reach a maintenance dose before the pollen season).
Cluster *	• Usually weekly injections; outpatient clinic; two or more injections per visit. • The maintenance dose is reached faster than conventional with a similar rate of reactions. • Injections are given 30 to 60 minutes apart.
Rush *	• Escalating to the maintenance dose using multiple injections per day at intervals of 15-60 minutes over a period of two to five days. • Increased risk of reactions. • Usually performed in inpatient or day patient clinic.
Ultrarush	• Dose escalation within one day, injections 15-30 minutes apart, significant risk of reactions, done in hospital.

*** Cluster and rush protocols are considered to be safer when using allergoid extracts due to the lower IgE-binding nature of these extracts.**

SCIT aspects of shared care

From a clinical safety and continuity of care perspective, it is preferable that SCIT is carried out by specialist physicians with experience in delivering SCIT. However, there are many circumstances where ongoing SCIT may need to be delivered in primary care. These circumstances include the lack of specialist resources, economic reasons and geographical isolation.

Although maintenance SCIT in a stable patient with the appropriate information and precautions can safely be delivered in primary care, it is recommended that patients who are unstable or have additional risk factors are managed by specialist clinics.

When a decision is made to deliver SCIT, a shared care approach is recommended. The specialist needs to be available to answer any questions that arise during the SCIT course, and to intermittently follow up the patient to assess the safety and efficacy of the SCIT being delivered.

When transferring the delivery of SCIT to primary care, there are many aspects of this process that need to be considered:

- Willingness of the medical practitioner in primary care to ensure compliance with the recommendations around both the storage and safety of the delivery of SCIT.
- Appropriateness of the facilities where SCIT will take place.
- Appropriate education is supplied to health professionals delivering SCIT.
- All health professionals delivering SCIT adhere to the standards required to ensure safety of delivery. In a practice where only one nurse or doctor is trained to give SCIT injections, there is no consideration to cover for absence. When improperly trained staff deliver SCIT injections, mistakes can occur.
- Ensuring the responsibilities of ordering the SCIT products be clearly stated.
- Patients should understand the safety aspects of SCIT, particularly the importance of double checking the SCIT dose and allergen; the appropriate method of giving the SCIT injections; and remaining in the clinic/practice under direct observation for at least 30 minutes after the SCIT injection has been administered.

Resources for primary care practices who deliver immunotherapy include the ASCIA SCIT Treatment Plan.

8. RESOURCES

The following resources are available on the ASCIA website:

ASCIA AIT e-training for health professionals: https://immunotherapy.ascia.org.au

ASCIA Venom Immunotherapy (VIT) Guide: www.allergy.org.au/hp/papers/ascia-venom-immunology-guide

Allergen suppliers (open access): www.allergy.org.au/members/allergen-immunotherapy-information

ASCIA SCIT treatment plan (open access): www.allergy.org.au/hp/papers/scit-treatment-plan

Sample SCIT dosing schedule and consent template, aeroallergens selection guide, grading system for adverse reactions to immunotherapy (members only): www.allergy.org.au/members/allergen-immunotherapy

For more information go to www.allergy.org.au

To donate to immunology/allergy research go to www.allergyimmunology.org.au