

Family Allergy 
Asthma, Immunology & Sinus Center

Allergy Injection Handbook

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Dear Patient,

Your doctor has recommended allergy shots (immunotherapy or I.T.) for the treatment of your allergies. Considerable dedication is required of the patient/family who have agreed to immunotherapy. The injections are weekly or bi-weekly injections until a high dose of allergen is reached. Only after a high or “maintenance dose” is reached will the full benefit of the injections be appreciated. It may take up to a year for symptom relief to occur. The full effect of the treatment will need to be adhered to for a minimum of three years. Following the weekly build-up dose, maintenance injections are slowly tapered to a minimum of once a month injections. Missed shots or reactions to shots can delay reaching maintenance dosage.

A six month follow-up visit with the physician is required in order to assess progress; yearly visits are then required. Please inform our office if you feel that the injections are not working.

Let us know as soon as possible if you become pregnant. We will not build up your doses until after your baby is born.

As with any long-term treatment or therapy, yearly evaluations and assessments by your physician are necessary to optimize and safely monitor your response. Your physician will periodically review with you your progress at scheduled appointments. However, situations may arise in between visits that may be important to the success of your treatment. Therefore, we ask your cooperation in alerting the injection personnel before receiving an allergy injection of any changes in your health (heart disease, diabetes, cancer, pregnancy etc.) or medications (specifically beta-blockers prescribed by other physicians and any over-the-counter, homeopathic, herbal or alternative medicines).

This booklet is designed as a resource for you to refer to, for questions that may arise over the course of your treatment. However, do not assume the extent of the information contained within these pages is your only resource. If you have questions or situations that arise please feel free to ask.

Sincerely,

Family Allergy, Asthma, Immunology, and Sinus Center

General Allergy Injection Procedure

1. Walk in – 30 minutes before closing

2. We will ask if you had any problems with your last injection after you left the office.

Specifically:

- Bumps at the site that may have developed or enlarged
- Itching away from the injection site
- Hives
- Sneezing
- Shortness of breath, wheezing or chest tightness
- Throat tightness

If any of these symptoms, or anything you may be concerned or have questions about has arisen, now is the time to discuss these concerns, NOT after you have received your injection. (See Allergy Injection Reactions)

3. We will need to be able to get to your upper arm to give your injection, so you may want to consider wearing short sleeves and/or easy clothing to remove on days you plan on getting an injection.

4. Allergy injections are given in the outer aspect of the upper arm. Other areas of the arm will increase the irritation or may affect local nerves. Please do not ask for an injection in any other place.

5. After your injection you are REQUIRED to wait 30 minutes in the waiting room. This is for your safety in the event of serious side effects developing. Remember: A systemic life-threatening reaction may occur at anytime, even after years of trouble free injections.

6. Before leaving the office have your arm checked. It is not necessary to draw a number for this, please just wait at the partition and we will check your arm promptly.

7. If you are a new injection patient we ask that you come in twice a week in order to reach your maximum concentration or maintenance dose as quickly as possible. Thereafter you will be coming in weekly. The injectionist will notify you when you can reduce to weekly injections. (See Allergy Extracts)

8. Reordering antigen. Insurances will require us to make up either a 12 month supply of antigen. We will have you sign an authorization form with each reorder.

9. Vacations. Please get an injection immediately before leaving on vacation and upon return. This minimizes the impact of being off your injections for an extended period of time.

10. Please notify us of any new medications prescribed by other physicians. Some medications (specifically beta-blockers-meds ending in “lol” as in “Atenolol”, see the list of Medications Interacting with Injections) are contraindicated if on allergy injections. If you are on a beta-blocker medication we will have to discontinue allergy injections and request that you see your physician about a possible change in medications.

11. Do not exercise or play sports 1 hour before or after receiving an allergy injection.

12. Do not get another injection/immunization on the same day (i.e. MMR, DPT, Influenza, Pneumonia, etc.)

13. Women – Please notify us immediately if you become pregnant. You will have to consider holding dose or stopping but you cannot advance shots or buildup.

14. Please notify us immediately of any address or insurance change. If we are not notified of insurance changes you may be liable for charges incurred.

Do not get an injection if:

- Running a fever
- Experiencing asthma symptoms of any degree
- Feel ill enough to miss school/work
- Have a rash or hives.

Call if you have any questions about receiving allergy injections when sick. (See Frequently Asked Questions).

For Patients Receiving Allergy Shots Outside Our Office

In some circumstances, it may be necessary to receive injections at an office other than one of ours. In these instances, certain things will become your responsibility to facilitate this process.

1. To receive injections at a MEDICAL office other than ours there must be a physician, physician assistant (PA), or nurse practitioner (NP) on duty at the time of the injection and for the mandatory 30-minute waiting period.
2. Insure the physician (PA or NP) will agree to give the allergy injections. Not all physicians (PA or NP) are comfortable giving allergy injections or have the staff available to provide this service. Please do this before asking us to mail the antigen.
3. The antigen will be mailed via certified mail to the physician's office. There will be a minimum \$15.00 fee for shipping. Most insurance's will not cover this fee and it will be your responsibility. The physician's office will be asked not to relinquish the antigen to you, but to mail it directly back to our office should it be necessary.
4. While receiving allergy injections outside our office, the maximum dose will be 1-20 (red top) 0.30. **DO NOT EXCEED THIS DOSE.**
5. **DO NOT GIVE EXPIRED ANTIGEN.** Each antigen bottle is labeled with an expiration date, please dispose of expired antigen.



How Do Allergy Injections Work?

In order to understand the mechanism of allergy injections we must first review the allergic response.



When pollen, dander, or another allergen is introduced into the body of an allergic person, the body may respond by developing **allergic antibodies (IgE)**. As more and more allergen over time are introduced into the body, more allergic antibodies are made. Allergic antibodies attach to specialized allergy cells called **mast cells**. On future allergen exposure, the mast cell is signaled to release histamine, leukotriene and other allergy causing chemicals that attach to various parts of the body producing symptoms commonly seen with allergies like: sneezing, itchy watery eyes, runny nose, congestion, wheezing, cough, etc.

Allergy injections stimulate the body to make **blocking antibodies**. Blocking antibody, as the name implies, blocks the attachment of allergens to allergic antibodies on mast cells, thereby preventing the release of the allergy causing chemicals (histamine, leukotriene, etc.) The longer the stimulation and production of blocking antibody (i.e. the longer allergy injections continue) the more complete the blocking of the mast cells. Also, while allergy injections are increasing blocking antibodies, allergic antibodies are decreasing, thereby producing effective results by two mechanisms.

What is in Your Allergy Shot?

Allergy shots contain those allergens that were positive on skin testing (a positive test is a 2 or higher in the PR column) after your physician considers your history and environmental exposures.

A formula or “recipe” is written by your physician and sent to the antigen department where the extract is made. There are guidelines for mixing extracts, and a certain amount of experience on the allergist’s part to optimize this process. Dr. Zarei has years of experience in developing extracts.

But, let’s go a little deeper with this question. Where do we get the pollen, dander, mold spores and dust (and dust mite) that we use to make the allergy extract? The pollens are collected from cultivated fields, green houses, or from nature by vacuum collection or a drying process. The pollens are then filtered extensively to isolate a single pollen and to remove contaminants. The animal danders are collected from the pelt and skin of healthy animals. Mold spores and dust mites allergens are cultivated in controlled conditions in laboratories.

The industry is rigorously monitored and each allergen is standardized to minimize variations. This is important to insure a constant potency. Finally, each allergen batch is tested before being approved for human use.



A Note on Food Allergies

Immunotherapy to food allergies has not been proven safe and effective. Therefore, foods will not be put in your allergy injections. The best treatment for food allergies is avoidance of that food.

Allergy Extracts

The allergy extract or antigen is the mix that you receive in your allergy injections. It is not a serum. Our physicians individualize each extract for the patient. It is reflective of your skin test results, history and environmental exposures.

Our physicians review the results of your skin testing along with your allergy history to generate a formula or recipe for your allergy extract. That recipe is then sent to our antigen department who will mix your allergy extract. Each extract is formulated in a maximum concentration of 1-10 (allergen: diluent). From this 1-10 concentration a series of dilutions are made, each 10 times weaker than the previous, until the starting dilution is reached. Your starting dilution is determined by the physician and is dependent on sensitivity, history and the season in which you are initiating allergy injections. Each dilution is color coded for easy identification.

Top Color Concentration

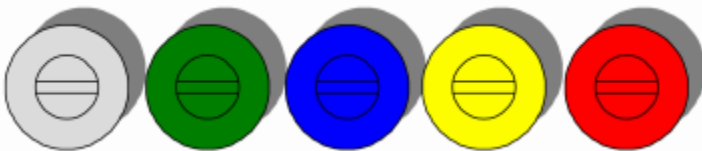
Silver top 1:10,000

Green top 1:1,000

Blue top 1:100

Yellow top 1:10

Red top 1:1 (maintenance)



Most patients will start their injections in the 1:1,000 or 1:10,000 dilution, and progress up from there in a stepwise fashion. A minimum of five shots of a pre-determined amount is given from each dilution, starting with a small amount and progressing to a larger and more potent amount with each injection, as long as there are no reactions noted.

An ideal, reaction-free progression is as follows:

Allergy Injections, Involves 3 phases (A, B, C)

A. Build-up Phase- 28 injections:

- Twice a week (i.e. Tuesday, Thursday), 3.5 months to reach Full Dose (0.3cc), and then graduate to tapering phase.
- Weekly, 6 months to reach, Full Dose.
- Twice a month, 1 year to reach, Full Dose.

| Weak | | | | → | Strong | | |
|-------------|----------------------------|-----------|--------------------------|-----------|---------------------------|-----------|---------------------------------------|
| Step # | Green #4 1:1000 | Step # | Blue #3 1:100 | Step # | Yellow #2 1:10 | Step # | Red #1 Maintenance 1:1 |
| <i>1</i> | 0.05 | <i>8</i> | 0.05 | <i>15</i> | 0.05 | <i>22</i> | 0.025 |
| <i>2</i> | 0.10 | <i>9</i> | 0.10 | <i>16</i> | 0.10 | <i>23</i> | 0.05 |
| <i>3</i> | 0.15 | <i>10</i> | 0.15 | <i>17</i> | 0.15 | <i>24</i> | 0.10 |
| <i>4</i> | 0.20 | <i>11</i> | 0.20 | <i>18</i> | 0.20 | <i>25</i> | 0.15 |
| <i>5</i> | 0.30 | <i>12</i> | 0.30 | <i>19</i> | 0.30 | <i>26</i> | 0.20 |
| <i>6</i> | 0.40 | <i>13</i> | 0.40 | <i>20</i> | 0.40 | <i>27</i> | 0.25 |
| <i>7</i> | 0.50 | <i>14</i> | 0.50 | <i>21</i> | 0.50 | <i>28</i> | 0.30 Full Dose |

B. Tapering Phase- 6 injections:

- Injection(s) once a week X 4 weeks, for up to 3-5 years
- Injection(s) every 2 weeks X 2

C. Maintenance Phase

- Injection(s) every 4

(Maximum dose varies, Based on individual response)

Exceptions to the progression noted above do occur. The injection personnel and/or your physician will decide if it is necessary to reduce, hold or slow your progression at a particular level. This decision is based on reactions, type of reactions, symptomatic response, and your comfort level.

Allergy Injection Reactions

Allergy injections, just like any medication or therapy, has the potential for adverse reactions. However, with other medication reactions you may be required to stop that medication, with allergy injections we expect some degree of reaction to occur. Which isn't to say we ignore reactions, just the opposite. We pay very, very close attention to reactions that occur from allergy injections. We want and need for you to do the same. These reactions occur in two forms: local and systemic. This is your body's way of telling us we are progressing too fast. THIS IS NOT A RACE!

Local Reactions

These are reactions that occur at the injection site and consist of itching and bumps. Depending on the size of the bump and degree of itching, your shot may be reduced slightly. After a reduction, you will resume advancing just as you did before the reaction occurred. In most instances you will progress right past this same dose without difficulty. Occasionally, some patients may have difficulty progressing through a dilution, and if so, we will slow the progression and advance you slower by either repeating a dose or advancing in smaller amounts.

Local reactions of bumps bigger than a quarter in size or an uncomfortable amount of itching are required to be reported to the injection personnel before you leave the office. If the reaction gets larger or itchier after leaving the office, please report the final size to the injection personnel before your next injection.

Systemic Reaction

This reaction is life threatening. Almost all systemic reactions occur within in the first 30-minutes of receiving an allergy injection, hence the reason for the mandatory 30-minute wait in our office or any medical facility after receiving an allergy injection.

A systemic reaction may occur at any time during your allergy treatment. Even with being on your maintenance dose for several years, it is still possible (and does occur) for a systemic reaction to occur.



A systemic reaction may have any or all of the following:

- Sneezing
- Runny and/or itchy nose
- Nasal congestion
- Itchy and/or watery eyes
- Itchy ears or palate (roof of the mouth)
- Coughing
- Shortness of breath or wheezing
- Fainting
- Dizziness
- Itchy throat
- Throat tightness
- Hives or itchy skin
- Flushing of the skin

If these symptoms develop in our office please tell the injection personnel or nearest employee immediately. If these symptoms develop outside our office, you will require treatment at the nearest emergency facility immediately.

A systemic reaction will necessitate a reduction of one full dilution in your allergy injections.

Delayed Reactions

Not all reactions occur within the 30-minute waiting period. You may have a delayed reaction (local or systemic) where symptoms can develop up to 24 hours later. These reactions must be reported to us before your next injection. They are as important as reactions that occur in the office. Please make it a habit to recheck your injection site throughout the day and report any bumps that develop. (See Local and Systemic Reactions above).

It's Not a Race!

Immunotherapy (allergy injections) is an important medical treatment for what can be a very serious disease. Over 25% of the population is estimated to have allergic rhinitis (incidentally, 35% of these also have asthma). Studies indicate 1.5 million school days are lost each year and close to 3.4 million work days due to allergies. Prescription medications are conservatively estimated at over \$5 billion dollars annually, and the annual loss in work productivity is estimated at many millions of dollars.



Immunotherapy will greatly impact these statistics, improving quality of life, decreasing overall medication costs, and improving productivity at work and school. However, we must caution you that this is not a race! Do NOT blindly proceed with the aim of the maximum concentration (1:1) as your goal. Your goal (and ours) is safety first and then symptom relief.

All patients will not be able to obtain the maximum concentration level of 1:1; some sensitive patients may have a lower maintenance concentration. The maintenance concentration (the dose at which the body is most comfortable and doesn't produce repeated severe reactions) will be individualized and adjusted as tolerated. Your maintenance concentration may be lower than the maximum concentration of 1:1 if you are a sensitive individual. A majority will obtain the 1:1 Concentration after about 3-4 months of twice weekly injections. Some may never reach that level. These are generalities; you will benefit from your allergy injections at any concentration.

Our goal is to get you safely to your maintenance concentration to effectively reduce your allergy symptoms.

For your safety:

- Accurately report all reactions, local and systemic.
- Always wait the mandatory 30-minute waiting period after an injection.

Are Your Allergy Injections Helping?

Take a mini self-assessment test.

To assess whether or not your allergy injections are beneficial, recall your symptoms or the condition that brought you to our office. For some, this may have been frequent respiratory, sinus or ear infections, uncontrollable asthma or uncontrollable allergy symptoms (sneezing, itchy eyes, nose or palate, runny nose, watery eyes, etc.) Reassess those symptoms now; usually some improvement will have occurred in about 6-12 months.

Ask yourself:

- Are my allergy symptoms better?
- Am I using less medication?
- Am I having less frequent sinus, ear or respiratory infections?
- Is my asthma under better control?
- Do I feel better?
- If I miss my allergy injection, do I feel worse?

If you've answered "yes" to any of these questions, you are starting to exhibit improvement from your allergy injections.

Assessing for improvement can also be accomplished by reviewing your symptom changes over the years you've been on allergy injections. Compare apples to apples when assessing for improvement. Specifically, compare same seasons (i.e. spring to spring). Compare the spring before starting allergy injections to the subsequent springs after starting allergy injections. Your own symptoms vary from season to season so comparing fall to spring will be misleading.



Frequently Asked Questions

1. Do I need to be tested again, and if so how often?

Your physicians may retest every 3-5 years. This allows for adjustment of your allergy extract. New allergies can develop and these may need to be added.

2. What do I do when I'm gone on vacations or business travel?

Consistency is the one most important aspect of your injections. The more consistent you are with injections the better the response you will receive. When going on vacation or business trips try as much as possible to get an injection just prior to leaving, and as soon as possible upon return. For most short trips (< 21 days) allergy injections will be minimally affected.

3. Should I receive an injection if I'm sick?

If you are ill enough not to go to work or school, postpone your shot. If you are running a fever or having asthma symptoms, do not get an injection until these symptoms have completely resolved. You may receive an injection if you are on an antibiotic or prednisone as long as any fever and/or asthma symptoms have resolved completely.

4. Should I tell my other physicians that I'm on allergy injections?

Yes, even though this is not a medication. There are medications that should not be given with allergy injections, so please always list your allergy injections on medication forms or whenever asked about medications.

5. How long will I be on allergy injections.

The average is between 3-5 years. Remaining consistent (weekly) with injections will help achieve a quicker response. Those who have few allergies may respond faster than those who have many allergies. Do not stop the injections on your own; if concerns arise please contact our office to discuss them.

6. What to do if my son/daughter is going away to college and they are on allergy injections?

Allergy injections are given at most colleges. Frequently, the student health department will give allergy injections. We will send the allergy extract on to them with complete instructions. If the institution has any questions, they are instructed to contact us before giving any allergy injection. We will then see the student for regular check-ups during school breaks when they are home.

7. What do I do if I'm moving?

If you are moving out of state, our physicians may be able to recommend a physician in the area you are moving too. We will then have you contact them and transfer your care. You may take your allergy extract with you to get injections at the new locale.

8. Can I, or a friend, give myself injections at home?

No. This is a treatment with serious implications. Should you have a reaction you would not be able to give yourself CPR or drive yourself to an emergency room or even call for help. Injections should be given in a facility with a medical provider available.

9. How do I reorder antigen when it is all gone or expired?

If you receive your injections in our office, we will reorder as necessary. You'll be required to sign an authorization form when it's time to reorder. If you are receiving your injections at another office, see the section For Patients Receiving Allergy Shots Outside Our Office.

10. What if I am, or want to become, pregnant?

Notify us immediately, if you are or think you are pregnant. During the course of your pregnancy you can continue your injections. However, we will not advance/increase your injection dosage during your pregnancy for safety reasons.

11. Can I get a shot if I have a rash?

It may depend on the rash and location of the rash. If there is a new rash on the arms we won't be able to give you an injection. If this is a chronic condition and hasn't changed or doesn't involve the arms you can proceed with injections. In general, all new rashes (or hives) will have to be assessed on a case-by-case basis. Please feel free to call our office to discuss.

12. I always get a bump after my shot, is this significant?

Yes, ALL bumps are significant. We need to know how soon after your shot they occurred, how big the final size was before they resolved, and in fact did they resolve? This is your body's warning signal. Please do not do yourself a disservice by not reporting these bumps.

Beta Blocker Medications

Brand

Betapace
Betapace AF
Blocadren
Brevibloc
Cartrol
Corzide
Inderal
Inderal LA
InnoPran XL
Kerlone
Nadolol
Sectral
Tenoretic
Tenormin
Timolide
Toprol-XL
Zebeta
Ziac

Generic

Acebutolol
Atenolol
Betaxolol
Bisoprolol
Carteolol
Esmolol
Lebetalol
Metoprolol
Pindolol
Propranolol
Sotalol
Timolol



Ophthalmic Preparations

Betaxon
Betimol
Betoptic
Cosopt
Timoptic
Timoptic XE

MAO Inhibitors

NardilPhenelzine sulfate
ParnateTranlycpromine sulfate