

## WHAT IS SUBLINGUAL IMMUNOTHERAPY (SLIT), ALSO KNOWN AS ALLERGY DROPS?

Sublingual immunotherapy (SLIT) is a form of immunotherapy that involves putting drops of allergen extracts under the tongue. Many people refer to this process as “allergy drops,” and it is an alternative treatment for allergy shots. This form of immunotherapy has been used for years in Europe, and recently has increased interest in the United States. However, it is currently not approved by the Food and Drug Administration (FDA) in the United States.

SLIT is usually delivered one of two ways: drops (or droplets) of allergen extract are placed under the tongue, then either swallowed or spat out. Most studies have looked at swallowing the extract which seems to work better. Immunotherapy is the oral route (swallowed and not kept under the tongue for any period of time) causes too many gastrointestinal side effects (nausea, vomiting, diarrhea) and therefore it is not used.

Generally, SLIT is administered daily (or several times a day) for a period of years. Most patients are able to self-administer SLIT at home. Studies have looked at giving SLIT before a pollen season, both, or year-round. We currently recommend SLIT year-round.

## HOW DOES SLIT WORK?

The immune system of the gastrointestinal tract tends to “tolerate” foreign substances meaning that it does not respond in an overactive way to swallowed material. This makes sense -- otherwise the body would react to anything swallowed, including food. When SLIT is administered into the gastrointestinal tract, the immune system promotes the development of tolerance to the allergen, instead of causing an over-reactivity of the immune system, such as with allergic disease. This results in less allergy symptoms when the body is exposed to the allergy source, such as airborne pollen or pet dander.

## WHAT IS THE SAFETY OF SLIT?

Over the past 10 years, the safety of SLIT has been well documented. Fatal reactions to SLIT have been reported to date, and serious reactions are extremely rare. Mild side effects, such as itchy mouth, occur in the majority of people initially and tend to resolve over time.

Moderate side effects have been documented (1 in about every 12,000 doses), including:

- lip, mouth and tongue irritation
- eye itching, redness and swelling
- nausea, vomiting, abdominal cramping and diarrhea
- sneezing, nasal itching and congestion
- asthma symptoms
- Hives, itching and swelling of the skin

Because of the safety of SLIT, people generally treat themselves at home, and are followed at the clinic at close intervals to monitor response to treatment. Epi-Pens are not currently prescribed to patients using SLIT in Europe. However, we feel it would be prudent to have an Epi-Pen and ready access to antihistamines in the event of anaphylaxis.

### **WHO COULD (OR SHOULD) RECEIVE SLIT?**

People with documented allergic disease (allergic rhinitis, allergic conjunctivitis, and/or allergy asthma) by allergy testing may be considered for SLIT. Young children have been shown to tolerate and benefit from SLIT, as have older adults. Pregnant women, as has been considered the general rule of thumb for allergy shots, can continue SLIT during pregnancy, but should not start the therapy while pregnant. People with severe asthma may need to be monitored more closely on SLIT, since asthma symptoms can worsen with SLIT.

Most studies of SLIT have focused on people with one type of allergy, such as grass or dust mite allergy. People with multiple allergy, such as molds, pollens, pet dander and dust mite may not be good candidates for SLIT, given the large volume of different allergen extracts that would need to be taken.

### **WHY IS SLIT NOT YET FDA APPROVED?**

Multiple studies are currently being approved conducted for the purpose of trying to get SLIT approved in the United States, but it is likely that approval is at least a few years away. However, the extracts that are used in preparing SLIT are the same extracts used in skin testing and in traditional Allergy Shots, but not specifically for use under the tongue. Therefore, allergy drops are considered an “off-label” use of the FDA approved allergen extracts.

The fact that allergy drops have proven safe and effective in numerous studies (including a Cochrane Analysis), may well eventually lead to one or more extract manufacturers obtaining an FDA indication for allergy drops in the near future.

### **HOW DOES SLIT COMPARE WITH TRADITIONAL ALLERGY SHOTS?**

Traditional allergy shots are a proven therapy in treating allergic rhinitis, allergic conjunctivitis, allergic asthma and venom allergy for nearly a century. Allergy shots have been FDA approved for many years, although they need to be given in a physician’s office due to the potential for severe side effects. Therefore, they may be an inconvenience to many people.

Studies comparing the efficacy of traditional allergy shots and SLIT show that allergy shots are better at treating allergic rhinitis and asthma symptoms. In addition, immunologic markers and other tests that correlate with response to immunotherapy are seen less commonly in people receiving SLIT. Therefore, while allergy shots appear to be superior at treating allergic disease, SLIT will likely become an important treatment option for people unwilling or unable to receive allergy shots.allergy drops in the near future.

### **HOW IS SLIT TAKEN?**

Allergy drops are self-administered, at home, under the tongue. (For young children, parents should administer the drops.) They are provided in a dropper-vial, which you hold up to your mouth and squeeze so that the drops “land” under the tongue. The liquid is held under the tongue for approximately 1-2 minutes before being swallowed. Applying the drops takes only a few seconds, and the entire procedure takes a little more than a minute.

### **HOW LONG DO I HAVE TO WAIT AFTER TAKING SLIT BEFORE EATING?**

Typically, we ask patients to wait at least 5 minutes before eating or drinking, just to allow for additional absorption time for the drops.

### **WHAT DOES SLIT TASTE LIKE?**

The drops have a slightly sweet taste, because they contain glycerin. Most adults and children find them quite tolerable and even pleasant.

### **CAN I TRAVEL WITH SLIT?**

Yes, in fact that is one of the main **ADVANTAGES** of drops. They are very easy to travel with and can go anywhere you can go. The dropper vials have a small enough volume to be carried on to any airplane. Since taking the drops is only a few seconds out of your day, it is very easy to continue your treatment, no matter where you are, or how long you're there.

### **DOES SLIT NEED TO BE REFRIGERATED?**

No. This is because the concentration of protein is higher in SLIT (compared to the extracts used in allergy shots), the dropper vials are consumer relatively quickly, and the extracts are all glycerinated, so potency is maintained without refrigeration. Many people take advantage of this by keeping their drops on the bathroom countertop as a reminder to take them every morning. However, to maintain their optimal potency, we recommend that you refrigerate (NOT freeze) the vials that are not actively being used.

### **DOES MY INSURANCE COVER SLIT?**

Since SLIT is currently not an FDA-approved therapy, your insurance will not cover this treatment and therefore cannot currently be billed. Therefore, you are responsible for the cost of SLIT. The cost of SLIT can be covered depending on the number of allergens used but one advantage is that there are no co-pays, deductibles, or travel costs associated with SLIT. It is possible that the cost of SLIT could be covered by a Health Savings Account (HSA) associated with your insurance; however, you are solely responsible for determining if your HSA plan will cover your SLIT costs.

## HOW DO I KNOW WHICH THERAPY IS RIGHT FOR ME?

Our aim is to get your allergy symptoms under the best possible control, with the least amount of medication necessary. There is no “one-size fits all” therapy and what works for one person with allergies may not work for another. Whether you choose to manage your allergies with avoidance of your triggers, a wide variety of allergy medications, or traditional allergy shots for SLIT, we will work with you to develop a treatment regimen that is right for you.

## DELIVERY SYSTEM

The most common delivery device for sublingual administration is a plastic dropper vial with a snap-in tip and a screw cap or a glass dispenser. The dropper delivers approximately 0.05 mL per drop (50uL). The most common maintenance volume with this device is 5 drops or 0.25mL.

## DOSING RECOMENDATIONS:

### • Build-up

- o Single build-up vial and one maintenance vial
- o Build-up vial is a 5-fold dilution of the maintenance solution
- o We suggest taking the dose in the morning
- o Hold the solution under the tongue for 1-2 minutes
- o Avoid eating anything for 5 minutes after dosing
- o The solution can then be swallowed
  - Day 1 → 1 drop (from the build-up vial) in the morning
  - Day 2 → 2 drops in the morning
  - Day 3 → 3 drops in the morning
  - Day 4 → 4 drops in the morning
  - Day 5-7 → 5 drops in the morning
  - Check in with the nurse, if doing well, then switch to the maintenance vial

### • Maintenance

- Day 1 → 1 drop (from the build-up vial) in the morning
- Day 2 → 2 drops in the morning
- Day 3 → 3 drops in the morning
- Day 4 → 4 drops in the morning
- Day 5-7 → 5 drops in the morning
- **Your maintenance dose is 5 drops in the morning**
- Some studies have shown splitting the maintenance dose (e.g. 3 drops in the morning and 2 drops in the evening may be more effective).
- o We typically prepare 3 months of treatment at a time. Check in with the nurse 2 weeks prior to your refill date.
- o **Note:** If you miss a day or two, continue with the 5 drops per day. If you miss a week, go through a 5 day build-up. If you miss more than a week, please contact us.