

## **Drug Allergy Clinic Testing Procedures: What to Expect**

There are several testing procedures that may be recommended for you to determine if it is safe for you to take one or more drugs in the future.

For instance, the penicillins are a common class of antibiotics but they are related to many other drugs that are in common use today. Therefore, if you have been labeled as being allergic to penicillin this may mean that you have been told to avoid many other drugs either in the same or a related family (e.g. cephalosporins).

The common tests/procedures that are done in a drug allergy clinic include:

- 1) Skin testing (prick and intradermal)
- 2) Patch testing
- 3) Oral Challenge (both single and multiple)
- 4) Desensitization

### **What is Skin testing?**

In our clinic skin testing to penicillins and other drugs causing allergy is done by a nurse under supervision of a doctor. The skin testing itself is usually divided into two steps and it take a total of about 40 minutes to get to the first step of immediate reading. For some allergic reactions it is the immediate reaction that is important and you will see a response on your skin within 15 minutes for other reactions the response on the skin can be delayed more than 24 hours. Skin testing is a safe way of introducing the suspected allergic material to your skin where a local reaction can occur without putting you at risk for a severe reaction like the one you may have initially experienced with the drug.

For safety reasons skin testing is often split into two parts

### 1) Skin prick test

A skin prick test, also called a puncture or scratch test, checks for immediate allergic reactions. Tests are usually performed on the non-dominant forearm. This type of testing uses needles (lancets) that barely penetrate the skin's surface. You won't bleed or feel more than very mild and transient discomfort.

The prick test site is cleaned with alcohol and the nurse draws will use a marker to identify different testing spots. The nurse will use the lancet to prick the relevant drug product into the skin surface. A reading will occur 15 minutes after application of the drug to skin

To see if your skin is reacting normally, two additional substances known as “controls” are scratched into your skin's surface:

- **Histamine.** To make sure your skin can react to a drug allergy (positive control). Most people have a very strong response to histamine. Certain drugs such as allergy pills (anti-histamines such as Claritin, Allegra, Benadryl etc. and other prescription drugs). You will have received a list and talked to our nurse before your appointment to avoid drugs that could interfere with the interpretation of skin testing.
- **Glycerin or saline.** These are not meant to cause a reaction and are the “negative controls”. About 15 minutes after the skin pricks, the nurse observes your skin for signs of allergic reactions. If you are allergic to one of the substances tested, you'll develop a raised, red, itchy bump (wheal) that may look like a mosquito bite. A nurse will then measure the bump's size.

Because skin reactions can be delayed we ask that you leave the black markings that have been placed on the skin for testing on for at least 24 hours.

### 2) Intradermal skin test

This is very similar to prick testing however it is a more sensitive test to pick up drug allergy. A needle will be used to inject a small amount of sterile drug or drug product just into the skin on your arm. The site will be examined and read after 15 minutes. The injection site is examined after about 15 minutes for signs of an allergic reaction. Histamine and saline are also used to ensure that there is a positive and negative response on the skin to these positive and negative controls respectively.

Like the prick tests the intradermal test responses can be delayed and we ask that you keep the black markings on your arm for at least 24 hours as these indicate to which drugs you to

### 3) Patch test

Patch testing is done to see help define your response to a drug when your reaction a particular substance is more delayed. The patch test can take several days and up to a week to become positive. Like skin testing multiple drugs can be tested on a patch test at the same time

Patch tests use patches instead of needles which are then placed on your skin. The patch consists of hypoallergenic wells where drugs typically mixed with sterile Vaseline can be placed. The wells where the drug substance is placed is embedded in a hypoallergenic tape which can then be affixed to your skin.

You wear the patches on the back (or sometimes upper arm) for 48 hours. During this time, you should avoid bathing, sun exposure and activities that cause heavy sweating. The patches are removed when you return to your doctor's office. A reaction at the site of where the patch test has contacted the skin may indicate an allergy. Although the patch test is removed at 48 hours, the reaction in your skin can be delayed up to 7 days.

### 4) Oral/Ingestion challenge

This is the final tests that determines if it is safe for you to take a drug or not. Most of the time this will occur by the oral route in the form of a pill or liquid suspension that you swallow. Occasionally this will be an injection under your skin or muscle. Typically, you would remain under observation for 2 hours after an oral challenge or 1.5 hours after any other type of ingestion challenge. For aspirin and anti-inflammatories, the reactions can be ore delayed and you would be under observation for up to 4 hours.

### 5) Desensitization or slow reintroduction

This is typically done when you have had an immediate or delayed reaction which may be supported by a positive skin test and/or oral challenge but you need to take the drug in the future. This procedure exposes your body to small but increasing amounts of a

drug over 3-4 hours as a means of “tricking” your immune system into thinking you are not allergic. Whether or not you are suitable for desensitization will be determined at the clinic. Desensitization is a temporary process which must be repeated every time that you require a drug. Some drug reactions are too severe and desensitization will not be recommended. Where possible actually determining if true drug allergy exists or not is preferable to desensitization (e.g. penicillin skin testing and oral challenge) but sometimes when a drug is needed emergently or when a skin test and/or oral challenge have already come back positive, desensitization is the best option. Drugs to which desensitization is commonly performed include: penicillin’s and other antibiotics, Bactrim and allopurinol, however desensitization can be performed to almost any drug if there is an indication. A special form of challenge is used to allow patients with aspirin exacerbated respiratory disease to take aspirin.

**Common Questions:**

These are amongst the most common questions that patients have but it is understood there will be others. Please try and read this prior to your appointment and we will provide clarification or answer additional questions that you may have during your appointment.

This is a link to the clinic website which also provides a list of the drugs you need to avoid and addition information about the clinic.

<http://www.vanderbilthealth.com/asap/48056>

**1. How long will I be at the clinic?**

We aim as much as possible to offer you same day appointment and testing. For most patients this is the most convenient and may even mean that all problems can be assessed in one appointment. When you are called you will generally be given some idea of how much time you will spend at the clinic but the table below summarizes the average appointment times according to the type of procedure.

Boredom is the most common side effect of our clinic so please bring some reading materials etc. to occupy your time.

Test/procedure	Time at Clinic
Skin testing alone	< 1 hour
Skin testing and oral challenge	3-4 hours

Single dose oral challenge	2 hours
Two dose oral challenge	3-4 hours
Aspirin or anti-inflammatory two dose oral challenge	4-5 hours
Desensitization (single day)	4-8 hours

**2. Do I need to stop all my drugs and fast prior to my appointment?**

Absolutely not in fact stopping many of your drugs could be dangerous. To make your experience most comfortable it will be recommended that you have breakfast as normal and bring your medications with you if you normally would take these during your normal allotted clinic time.

In terms of “drugs to avoid” prior to your clinic visit these would mainly be drugs that have the same properties of allergy drugs. You will be phoned by a nurse prior to your appointment to check your medication list and to advise you of any drugs you need to avoid prior to your appointment.

**3. Will I have a reaction when I leave the clinic?**

This would be very unusual and we would warn you if there is any chance of these. All serious reactions will occur when you are under observation at the clinic. Depending on the drug that you have reacted to mild delayed rashes may occur a few hours after you leave the clinic. You would be warned about this and asked to take pictures to document any reaction. This is still extremely uncommon <5% of cases that are tested in clinic.

**4. My test is positive what happens next?**

You will be given documents before you leave clinic that very clearly give you advice on what drugs are safe to take and what drugs you must avoid. Following a positive test, it is possible that you may need more testing to specifically clarify which drugs you can safely take in the future. Following a positive test, we would generally ask that you obtain a MedicAlert bracelet or equivalent. In general it is not recommended that patients who have had a drug allergy carry an Epi-Pen. We will take care of notifying you health care professional team including on your consent your pharmacy that dispenses your drugs.

## 5. My test is negative what happens next?

This is usually very good news and means that you may have opened up many new treatment options. Before you leave clinic you will receive specific written information documenting the drugs are safe for you to take. Your health care professional team including your pharmacist (on your consent) will also receive these documents. Occasionally when a test is negative more information is needed to complete the assessment and you would be advised of this.

## 6. If I have a drug allergy or test positive will other family members be at risk?

Fortunately, most people that think they have a drug allergy will test negative and be able to safely take drugs in the future. Although there is new science being generated all the time the immediate reactions such as those associated with penicillin are not directly inherited and most people have a tendency to lose these types of immediate reactions such as those associated with penicillin over time. This loss of allergy occurs in the order of 10% per year such that if you have had a very remote reaction as a child or more than 10 years ago you would have only a very small chance of retaining this allergy and have an excellent chance that your testing will be negative

Other very serious drugs reactions and in particular those severely affecting the skin or liver have now been shown to be associated with specific genes called human leukocyte antigen genes (HLA). An individual receive one set of these from the mother and one set from the father which means if you have had a very severe reaction there is a chance that a family member given the same drug could also have a reaction. Currently however only a small percentage of those carrying a risk HLA gene will develop a severe drug reaction and the factors to explaining this gap are currently being studied.

## 7. What happens if I have to cancel my appointment?

If you have to cancel your appointment we would ask that you give at **least 5 business days notice**. The reason for this is that in our attempts to make our drug allergy service as convenient and efficient as possible we aim to offer you same day testing and we do not charge you for the drugs that you are being tested against. The drugs we use in testing need to be made at special dilutions and prepared under sterile technique but for most of these unless they are used for testing within 24 hours of

preparation they will not be stable enough to use for the next appointment and hence they will be wasted.

#### **8. Are there research studies that I can participate in?**

The drug allergy clinic has a research program that runs in parallel to it. The purpose of this program is to understand severe drug allergies by defining their mechanisms and developing diagnostic and screening tests that can aid in future diagnosis, prediction, prevention and treatment of these severe. If we think you are eligible for these studies we will ask you to talk to the research nurse associated with the drug hypersensitivity program.