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Nurses in Allergy

Standard Operating Procedure

Paediatric Allergy Skin Prick Testing

Compiled by members of the BSACI Nurses in Allergy Committee

The following standard operating procedure outlines how to perform a skin prick test and is applicable to all health care professionals undertaking this role.

A Skin Prick Test (SPT) is a simple and safe method of testing a person to determine whether or not they have an IgE-mediated allergic response to a specific inhalant or food allergen.
SPT should be performed by trained practitioners who are also trained in resuscitation techniques.
SPT should only be interpreted in conjunction with a clear clinical history. Individuals may have a positive SPT without having allergy symptoms. These guidelines do not cover the interpretation of the tests.

This guideline is intended for a single lancet prick method.

Exclusions
SPT reactions are inhibited by antihistamines and also topical corticosteroids applied to the skin where testing is to be performed. Therefore where possible inhibitory medication should be stopped (please refer to the BSACI Antihistamine document) or alternative testing methods considered. Short acting anti-histamines should be stopped for 72hours prior to testing.

Cautions
Caution should be taken when considering SPT for patients with unstable asthma. If the patient is experiencing an exacerbation of asthma at the time of testing then SPT may have to be avoided.

Equipment
- Selected allergens and positive and negative control solutions (stored at +2-+8^{o}C). Check expiry date and date opened (some manufacturer's state that skin test solutions should be used within 6 months of opening.) [(4)]
- And/or fresh foods to be used for testing
- Skin prick test recording sheet
- Pen
- Individual sterile skin prick testing lancets
- Sharps bin
- Tissues
- Skin test measure
- Timer / clock / watch
- Pillow – on which to rest the child's arm.

- Appropriate emergency equipment must be accessible

  Antihistamine (syrup/tablet)
  Adrenaline Auto-injector or Vials Adrenaline 1:1000 plus needles and syringe
  Hydrocortisone ointment
  Beta 2 agonist should be available if patient is asthmatic.

Preparation

Verbal consent for the procedure should be obtained. The procedure should be undertaken in accordance with local infection control policy using appropriate hand hygiene measures. Select appropriate test site free from eczema / dermatitis, tattoo marks. The preferred site is the forearm or thigh but the back may also be used particularly in small infants.

The skin prick tester should sit opposite the patient with the patient's forearm resting on the pillow with the volar aspect upwards. This enables the tester to maintain eye contact with the patient at all times and provide the patient with a comfortable position for the test.
The younger child can sit upon their parent's lap opposite the tester with the pillow resting between them. The parent to hold the upper arm while the tester holds the child's hand or wrist. This enables the tester to maintain eye contact with the parent and child at the same time keeping the child's arm steady, while the child receives reassurance from parental touch. This method is preferable to SPT on the back as maintaining eye contact and being able to see what is happening makes the procedure less frightening for the child.

PROCEDURE	RATIONALE
Gather equipment required - see equipment list above.	To prevent unnecessary delays
Give an accurate and appropriate account of the procedure to the child and family. The family are advised of the involvement of the play specialist if required.	To ensure child and carers are fully informed and to relieve anxiety, promote compliance and parents are able to give informed verbal consent.
Take consent from an appropriate adult	
Document that consent has been taken	
If taking antihistamines, check when last taken. The child should have stopped taking any form of medicine containing antihistamine prior to test (Please see BSACI Antihistamine document to confirm duration)	Antihistamines will interfere with the outcome of the skin prick test and should not be taken prior to the test
The nurse must wash her hands prior to commencing the procedure, following the hand hygiene policy and also once the procedure has been completed.	To prevent cross infection
The nurse administering the procedure to select an appropriate site for the skin test (forearm, thigh or back), according to the age of the child, child's preference and skin condition. The test should only be performed on clear, eczema free skin where topical steroids and emollients have not been applied.	To enable the test to be carried out as efficiently as possible and without complications.

The site chosen should **not** be cleaned with antiseptics or alcohol.	Antiseptics and alcohol can temporarily impair the ability of the skin to react.
Ensure the child is comfortable, e.g. support the arm on a pillow. If appropriate allow the child to sit on parents lap.	To ensure the child is as relaxed and reassured as possible throughout the procedure.
Mark the skin with the initial letter of each allergen being tested. Each site should ideally be a minimum of 2cms apart.	To ensure clear identifiable readings of positive reactions (avoiding overlap and confusion of borders
Always start with the negative control and end with the positive control.	To provide consistency and also the positive allergen reaction time is the quickest
Use distraction throughout the test.	To reduce anxiety and promote compliance
Place one drop of each allergen solution in line with its marked place on the skin. Alternatively, if the substance being tested is not available in a prepared solution then a “prick-to-prick” method may be used. (see below *).	To prevent wastage and ensure the accurate identification of the allergen
Push the lancet through the drop of allergen (if prepared solution is used) or directly to the identified site (if using a “prick-to-prick” method) and apply the lancet at 90° to the skin without drawing blood. Only the lancet designed for skin prick testing can be used. The lancet should then be immediately discarded into the sharps bin.	To ensure that the allergen penetrates the outer surface of the skin To minimise discomfort for the child and promote safety of procedure To ensure safe disposal of sharps
Repeat the procedure for each allergen and the controls using a new lancet for each allergen.	To prevent contamination between the allergens
Using a paper tissue simultaneously blot the excess fluid from all sites. Take care not to cross contaminate the sites with other allergen solutions. If the child is wriggling it may be preferable to complete each allergen separately.	To remove surplus fluid and thereby reduce the risk of contamination
The results should be read 10-15 minutes after the positive was completed. The measurements, in millimetres, are taken using skin test reaction gauge. Measure the longest extent of the wheal (not including the flare) and the extent 90° to the first measurement. Record both measurements or the mean of these two measurements. An imprint of the results may also be taken.	To ensure an accurate assessment of the reaction is recorded - reactions read after 15 minutes may have started to fade and may not be accurate
Any pseudopodia should be noted but not included in the measurement of the wheal.	
A wheal diameter of at least 3mm larger than the negative control is accepted as a positive reaction in older children and teenagers. In younger children and babies, a smaller wheal response is considered to be positive. Thus training and experience is essential for the interpretation.	
A wheal response to the negative control solution indicates the child may suffer from dermographism (the skin is reacting to pressure rather than the solution) or is sensitive to the stabilisers in the allergen solutions and so invalidates the test. However if the reaction is 3mm larger than the size of the negative control then the test can still be considered valid.	

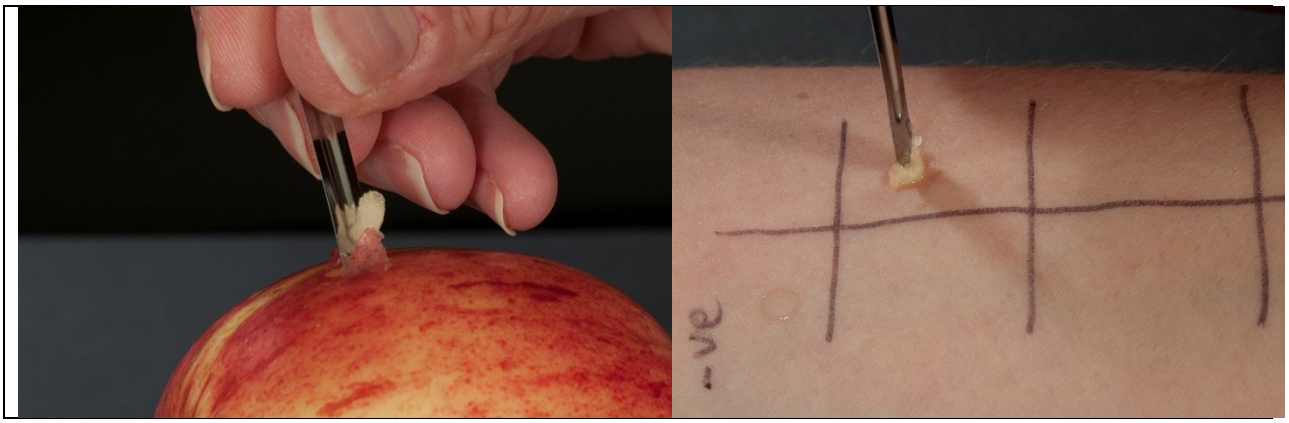
A negative reaction to the positive control indicates that the child may have taken antihistamines, or a high dose of oral steroid, or is immunodeficient, or has had some topical application that is preventing the skin from reacting and so invalidates the test	
Hydrocortisone cream / ointment may be applied to the test site if the child complains of extreme irritation, but only after testing is completed.	Hydrocortisone ointment will help the area to be less itchy
Oral antihistamines can be given to relieve severe itch or for systemic symptoms, such as eye swelling.	To relieve symptoms
The outcome of the test should be recorded on the Skin Prick Test Form and must include the following: • The date • The child's name, age and hospital number • Any recent antihistamine medication and when last taken • The wheal size of each response in millimetres • Skin prick solution or prick to prick method • Name, designation and signature of the person performing the test.	

***Prick-to-prick testing with fresh foods**

The food used for testing fruit and vegetables should be fresh and not tinned or cooked as these processes can alter allergenicity.

For fruit / vegetables push lancet into a fleshy and juicy/moist site of the food (through skin if normally eaten) and place a small amount of the food substance onto the skin. Then introduce the lancet into the surface layer of the skin at a 90^{O} angle through the food.

For other foods place a small amount onto the skin, where practical, or crush/grind and make a paste using sterile saline and place this on skin before pricking through it with the lancet.



Interpreting the Skin Prick/ Prick to Prick Test

Ensure that the results are discussed with the patient by an appropriate clinician and, when applicable, allergen avoidance advice is given. It is important to be aware of the distinction between sensitisation (a positive test without clinical allergy) and allergy.

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