SESLHD PROCEDURE COVER SHEET

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FUNCTIONAL GROUP(S)	Medicines and Therapeutics Related Policy Documents Medicine
KEY TERMS	Antibiotic allergy, skin prick testing, penicillin, intradermal testing, anaphylaxis, systemic allergic response
SUMMARY	This procedure outlines the process for drug allergy skin prick test (SPT) and intradermal test (IDT). SPT and IDT may be recommended by a physician in Infectious Diseases or Immunology in individuals with a history of drug allergy, especially antibiotics.

1. POLICY STATEMENT

Determining and documenting a patient's medicine allergies, including the type of reaction, the severity and how it was managed, minimises medicine-related risks.

2. BACKGROUND

Skin prick testing (SPT) and intradermal testing (IDT) can be recommended in individuals with a history of antibiotic allergy. This is in line with guidelines for Australian Antimicrobial Stewardship (AMS) programs, which recommend patients have a detailed history of their antimicrobial allergy taken with the view to de-label some from their allergy by performing and interpreting allergy testing. This is because many patients who report antibiotic allergy are subsequently found to be negative on skin testing (for penicillin/beta-lactam antibiotics) and challenge. Similarly, many allergy labels are Type A reaction (non-immune mediated, related to the drug's pharmacological properties e.g. nausea and vomiting), and should not be labelled on the electronic medical record as allergies, since they are non-immune mediated. In many cases, patients with penicillin allergy labels can be safely de-labelled with direct oral challenge without skin testing. On the other hand, verifying true drug allergy in patients enables appropriate documentation and precautionary measures, and increases the safe use of antibiotics.

This procedure only applies to patients ≥ 16 years of age. Use of SPT, IDT and oral challenge must be assessed against the clinical need to confirm a diagnosis of drug allergy, the risk of a reaction and effect on clinical management.

	IDT can precipitate systemic reactions including anaphylaxis; therefore it needs to be performed in a setting where skills and equipment to treat anaphylaxis are available.
	In those with a high pre-test probability of severe IgE-mediated penicillin allergy, commencing IDT at 1:10 or 1:100 dilution is recommended.

3. DEFINITIONS

Immediate hypersensitivity reactions	Development of urticaria, angioedema, bronchospasm, or anaphylaxis within one hour of drug administration.
Anaphylaxis	Anaphylaxis is the most severe form of allergic reaction and is potentially life threatening. Anaphylaxis usually occurs within an hour of exposure to the trigger and may occur without prior exposure to a trigger. It is characterised by rapidly developing airway and/or breathing and/or circulation problems usually associated with swelling, redness or itching of the skin, eyes, nose, throat, or mouth.

Severe cutaneous adverse reaction	Severe cutaneous reactions involving the skin and/or mucous membranes and are life or organ threatening e.g., Steven Johnson syndrome, drug reaction with eosinophilia and systemic symptoms, toxic epidermal necrolysis, acute generalised exanthematous pustulosis.
IgE mediated reaction	Drug reaction which is immunoglobulin E (IgE) mediated and leads to mast cell activation.
Type A Adverse Drug Reaction	A drug reaction which is non-immune mediated and related to the drug's predictable pharmacological properties.
Type B Adverse Drug Reaction	A drug reaction which is typically immune mediated and has less relationship with drug dose and action.
β-lactam antibiotic	A group of antibiotics with a beta lactam ring, which includes penicillins, cephalosporins and carbapenems.
Dermatographism	An inducible urticarial reaction when pressure is applied to the skin and the pressure is moved across the skin.
Skin Prick Testing (SPT)	The primary mode of skin testing for immediate IgE-mediated allergy. It is widely practiced, carries very low risk of serious side effects, and provides high quality information when performed optimally and interpreted correctly.
Intradermal Testing (IDT)	Relevant to both immediate IgE-mediated allergy and delayed-type hypersensitivity. When used in the diagnosis of immediate allergy, it carries a higher risk of adverse reactions and requires high levels of technical and interpretive expertise
eMR	Electronic medical record
IMS+	Incident monitoring system

4. PROCEDURE

4.1 GENERAL REQUIREMENTS

- Must be over 16 years of age
- Must be referred by a consultant of Immunology or Infectious Diseases
- Identify the patient as per the NSW Health Policy Directive PD2017_032 - Clinical Procedure Safety
- Written informed consent obtained from patient by medical officer including consent for use of non-Therapeutic Goods Administration (TGA) approved allergens (obtained via Special Access Scheme (SAS) or authorised prescriber pathway) in accordance with NSW Health Consent to Medical and Healthcare Treatment Manual
- The patient should be provided with the ASCIA Allergy Testing Information for Patients, Consumers and Carers

4.2 LOCATION REQUIREMENTS

SPT and IDT must be performed in a medical setting with the ready availability of medical practitioners competent to treat systemic allergic reactions and appropriate equipment as per guidelines from the Australian Society of Clinical Immunology and Allergy.

At a minimum:

- Availability of oxygen, 6L/min via mask
- Facility for intravenous cannulation and intravenous fluids for rapid infusion in case of hypotension
- Ready availability of adrenaline for intramuscular injection
- Salbutamol via nebuliser or spacer
- Clinician proficient in intravenous cannulation

4.2.1 SGH

Skin prick testing and intradermal testing should only be performed in the Ambulatory Care Unit or inpatient wards at St George Hospital.

4.2.2 POWH

Outpatients can receive SPT and IDT in the Community Assessment Unit (CAU), Prince of Wales Hospital.

The CAU offers 4 outpatient consultation rooms that are equipped with O2 and suction to facilitate allergy testing. If an inpatient admission is required for further testing this can be arranged through the admissions clinic. The CAU consult rooms are open Monday to Friday 0800-1630hrs.

The CAU is located on Level 3 South Acute Services Building, Prince of Wales Hospital. Intravenous Cannulation and equipment to facilitate intramuscular injections of adrenaline along with salbutamol via nebuliser or spacer can be facilitated in the CAU. Patients requiring inpatient admission will require CAU Admitting Consultant of the day to be allocated as AMO 2 to co-facilitate the admission and ensure ongoing safety of the patient while admitted.

4.3 EMERGENCY PROCEDURES

Severe systemic reactions are extremely rare with SPT and IDT. Medical practitioners competent to treat systemic allergic reactions with access to appropriate equipment must be present at the location of skin and intradermal testing.

On the rare occasion a severe systemic reaction occurs, instigate a Code Blue call as per local facility procedures.

4.4 EXCLUSIONS FOR SPT / IDT

4.4.1 ABSOLUTE CONTRAINDICATIONS

- Skin testing should not be performed on areas of dermatitis, cellulitis, or other skin conditions as determined by the consultant physician in Infectious Diseases or Immunology
- Unable to cease antihistamines or other interfering medications

4.4.2 RELATIVE CONTRAINDICATIONS

- Dermatographism
- Taking beta blockers
- Unstable asthma
- Pregnancy

4.5 EQUIPMENT REQUIREMENTS

Type	Quantity
Drug/antibiotic allergen preparations*#	
Positive (histamine 10 mg/mL) - *special access scheme medication*	1
Negative normal saline for injection [for IDT] control solution OR Glycerosaline [for SPT) control solution - *special access scheme medication*	1
Sterile lancets for skin pricks	20
Sharps container for disposal of lancets	1
Marker pen for the skin	2
Ruler for measuring reactions	2
Tissue box	2
Recording sheets	*5*
Alcohol swabs (70% isopropyl)	10
26G or 27G needles	20
1 mL syringes or insulin syringes	20
Gloves	5

* Major penicillin determinant (special access scheme medication); minor penicillin determinant mixture (special access scheme medication); clavulanic acid (special access scheme medication); benzylpenicillin; amoxicillin; ampicillin; flucloxacillin; piperacillin/tazobactam; amoxicillin/clavulanic acid; cefepime; cefazolin; ceftriaxone; ceftazidime, cefuroxime

Additional skin prick testing/intradermal with other drugs / antibiotics may be performed if clinically indicated as directed by the physician in Infectious Diseases or Immunology

4.6 SKIN PRICK TESTING (SPT)

See 4.1 GENERAL REQUIREMENTS

Procedure MUST be performed or supervised by a clinician competent in the use and method of SPT.

- A performance assessment tool may be used to assess competency of procedural clinician (See Appendix 3).
- The procedure may be performed by a medical officer, registered nurse, or a pharmacist, but the medical officer must gain informed consent & review the skin reactions to confirm the measurements, aid in interpretation, monitor the quality of the test and determine whether any of the tests need to be repeated.

Patients need to avoid antihistamines, other interfering drugs and skin moisturisers for up to five days prior to the procedure if safe to do so. See ASCIA Information for Health Professionals Skin Prick Testing Guide for Diagnosis of Allergic Disease or complete list of medications which may interfere with the results.

4.6.1 Method

- Perform hand hygiene as per NSW Health Policy Directive PD2023_025 - Infection Prevention and Control in Healthcare Settings
- Volar surface of the arm should be used more than 5 cm from the wrist and 3 cm from the antecubital fossa.
- It is desirable but not essential to clean the skin site with alcohol prior to skin prick testing (this would be contraindicated in cases of extremely dry skin or eczema).
- Positions of skin pricks should be recorded to enable identification of the allergen when reading results.
- Skin prick tests should be at least 2 cm apart.
- There should be a positive control (using histamine hydrochloride (10 mg/mL) and a negative control (using sterile saline or glycerol)).
- A drop of the positive control, negative control, and allergen is placed onto skin prior to pricking the skin.
- The drop on the tip of the dropper can be touched on the skin to transfer the liquid but the actual tip of the dropper should not touch the skin.
- Do not let the allergen run onto the next prick site.
- All drops can be deposited prior to skin pricking.
- After skin prick, each drop may be blotted off the skin taking care not to cross contaminate the allergens.

4.6.2 Recording of Results

- The histamine result and the antibiotic skin tests should be read 15 minutes after the skin prick.
- The drops should be carefully blotted from each site prior to taking measurements.
- The mean diameter of the wheal should be read:
  - if it is circular, then one diameter is sufficient,

- if it is ovoid, then the longest and shortest perpendicular axis should be measured and divided by 2.
- The flare may also be recorded by the same method:
  - if the flares are overlapping, then only the width of the non-overlapping region should be recorded.
- Pseudopods (irregular linear extensions of the wheal) are not included in the measurement but can be marked separately.
- A chart should be kept and the wheal and flare size in mm recorded next to each allergen name (see Appendix 4). The size should be in numerical form (mm).

4.7 INTRADERMAL TESTING (IDT)

See 4.1 GENERAL REQUIREMENTS

Procedure MUST be performed or supervised by a clinician competent in the use and method of IDT.

- A performance assessment tool may be used to assess competency of procedural clinician (See Appendix 3).
- The procedure may be performed by a medical officer, registered nurse, or a pharmacist, but the medical officer must gain informed consent & review the skin reactions to confirm the measurements, aid in interpretation, monitor the quality of the test and determine whether any of the tests need to be repeated.

Patients need to avoid antihistamines, other interfering drugs and skin moisturisers for up to five days prior to the procedure if safe to do so. See ASCIA Information for Health Professionals Skin Prick Testing Guide for Diagnosis of Allergic Disease or complete list of medications which may interfere with the results.

4.7.1 Method

- A 26- or 27-gauge needle is used to make an approximately 5 mm "bleb" of extract intradermally.
  - This bleb should be measured at the beginning of the IDT as the baseline.
  - Each allergen should use a separate sterile needle.
- The volar surface of the arm should again be used more than 5 cm from the wrist and 3 cm from the antecubital fossa.
- An intradermal-negative control is included to control for reactions in response to the injection method.
- A positive-histamine control is not needed and should not be administered via IDT.
- The dilutions used of each allergen preparation for intradermal testing will be at the discretion of the physician in Infectious Diseases or Immunology (See Appendix 1)
  - As IDT can precipitate anaphylaxis, commencing IDT at 1:10 or 1:100 dilution is recommended in those with high pre-test probability of severe IgE-mediated penicillin allergy.

4.7.2 Recording of Results

- Results should be read 15 - 20 minutes after intradermal injection. The size measured at this time should include both wheal size, flare response and baseline bleb size.
- In those with delayed hypersensitivity without contraindications, a delayed read of the IDT will occur at 24 - 72 hours prior to determining appropriateness of an oral challenge.

4.8 POST PROCEDURE CARE

- Some patients may experience discomfort as a result of itching from the SPT or IDT. This usually subsides 1-2 hours.
- Patients should be warned that there is a possibility of a late-phase reaction.
- Patients who have multiple positive results and a history of asthma or anaphylaxis, should be observed for 20 minutes following the completion of IDT.
- Topical corticosteroids and non-sedating antihistamines may be used after completion to assist with patient comfort.

4.9 INTERPRETATION OF RESULTS

- The interpretation of the skin prick and intradermal test will be performed by a physician in in Infectious Diseases or Immunology. The decision of whether a patient is truly allergic depends on careful interpretation of the SPT/IDT result as well as consideration of other clinical factors.
    - A wheal or flare of 3mm or greater than negative control is considered a positive SPT & IDT, subject to clinical interpretation.
    - Wheals of > 3 mm to the negative control indicate severe dermatographism and would require rejection of the test.
    - Wheals < 3 mm (or < 3 mm greater than the negative control) in the positive control should be considered uninterpretable.
- Those testing negative for a skin prick allergen will be candidates for intradermal testing for that allergen.
- IDT requires differentiation of true positive from irritant reactions.
- Those testing **negative** may be considered for an oral challenge.
- Those testing **positive** should not have an oral challenge for that agent but may be considered for others which were negative and not expected to be cross reactive.
- See ASCIA Consensus Statement for the assessment of patients with suspected penicillin allergy: *Appendix 4 in the ASCIA Consensus document* provides an example pathway for penicillin allergy label high risk assessment but is subject to clinical interpretation based on each patient's index reaction and its implicated antibiotic.
- The patient should be educated on the outcome of the testing and the medical officer should write a letter to the GP and referring practitioner to advise of the outcome of testing. Confirmation or de-labelling of the antibiotic allergy should be documented in the electronic medical record.

5. DOCUMENTATION

Vital Observations - Between the flags (BTF) in eMR
Progress notes in eMR including documentation of consent, education provided, SPT & IDT results and follow up
Any adverse reactions will be documented in IMS+

6. AUDIT

Included in routine reviews of IMs+ and regular audits of documentation on medicine allergies and ADRs.

7. REFERENCES

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9. VERSION AND APPROVAL HISTORY

Date	Version	Version and approval notes
6 November 2024	1	New document developed to replace POWH CLIN207 & SGH BR 557 in consultation with SGH Infectious Diseases and POWH Immunology clinicians. Approved by SESLHD Drug and Therapeutics Committee and SESLHD Patient Safety and Quality Committee.

APPENDICES

Appendix 1: STEP BY STEP ANTIBIOTIC DILUTION INSTRUCTIONS

1. Reconstitute antibiotics according to the dilution table below for Skin Prick Testing and Intradermal Testing.
2. ALL dilutions must be counter checked by second MO/RN.
3. Use sterile normal saline for all dilutions, except Penicillin Major and Minor (use provided phosphate buffer provided in kit).
4. Agitate well between all dilutions.
5. Label ALL syringe/s according to the dilution strength as it is prepared to avoid error.
6. Do not attempt to answer phone/pager as any distractions during the preparation of dilutions could lead to errors in dilutions.

Penicillin Major (BP-OL)					
Step	**Drug**	**+**	**Diluent**	**=**	**Concentration For Skin Testing**
1	BP-OL 0.04mg powder	+	1mL Phosphate Buffer	=	**Neat**
2	0.13mL of PPL Neat	+	1.2mL Phosphate Buffer (new vial)	=	**1:10**

Penicillin Minor (MD)					
Step	**Drug**	**+**	**Diluent**	**=**	**Concentration For Skin Testing**
1	MD 0.5mg powder	+	1mL Phosphate Buffer	=	**Neat**
2	0.13mL of MD Neat	+	1.2ml Phosphate Buffer (new vial)	=	**1:10**

Benzylpenicillin 6mg/1mL – Neat **1:10 = 0.6mg/mL**					
Step	**Drug**	**+**	**Diluent**	**=**	**Concentration For Skin Testing**
1	Benzylpenicillin 600mg powder	+	1.6mL 0.9% sodium chloride	=	300mg/mL *(Not for testing)*
2	1mL of Benzylpenicillin 300mg/mL	+	9mL 0.9% sodium chloride	=	30mg/mL *(Not for testing)*
3	1mL of Benzylpenicillin 30mg/mL	+	4 mL 0.9% sodium chloride	=	6mg/mL **(neat)**
4	1mL of Benzylpenicillin 6mg/mL	+	9 mL 0.9% sodium chloride	=	0.6mg/mL **(1:10)**

Ampicillin 20mg/mL – Neat 1:10 = 2mg/mL					
Step	**Drug**	**+**	**Diluent**	**=**	**Concentration For Skin Testing**
1	Ampicillin 500mg powder	+	4.7mL 0.9% sodium chloride	=	100mg/mL *(Not for testing)*
2	1mL of Ampicillin 100mg/mL	+	4mL 0.9% sodium chloride	=	20mg/mL **(neat)**
3	1mL of Ampicillin 20mg/mL	+	9 mL 0.9% sodium chloride	=	2mg/mL **(1:10)**

Amoxicillin 20mg/mL – Neat 1:10 = 2mg/mL					
Step	**Drug**	**+**	**Diluent**	**=**	**Concentration For Skin Testing**
1	Amoxicillin 1000mg powder	+	9.3 mL 0.9% sodium chloride	=	100mg/mL *(Not for testing)*
2	1mL of Amoxicillin 100mg/mL	+	4mL 0.9% sodium chloride	=	20mg/mL **(neat)**
3	1mL of Amoxicillin 20mg/mL	+	9 mL 0.9% sodium chloride	=	2mg/mL **(1:10)**

Flucloxacillin 2mg/mL – Neat 1:10 = 0.2mg/mL					
Step	**Drug**	**+**	**Diluent**	**=**	**Concentration For Skin Testing**
1	Flucloxacillin 500mg powder	+	4.6mL 0.9% sodium chloride	=	100mg/mL *(Not for testing)*
2	1mL of Flucloxacillin 100mg/mL	+	4 mL 0.9% sodium chloride	=	20mg/mL *(Not for testing)*
3	1mL of Flucloxacillin 20mg/mL	+	9 mL 0.9% sodium chloride	=	2mg/mL **(neat)**
4	1mL of Flucloxacillin 2mg/mL	+	9 mL 0.9% sodium chloride	=	0.2mg/mL **(1:10)**

Piperacillin/Tazobactam 20/2.5 mg/mL - Neat 1:10 = 2/0.25 mg/mL					
Step	**Drug**	**+**	**Diluent**	**=**	**Concentration For Skin Testing**
1	Piperacillin/Tazobactam 4g/0.5g powder	+	17mL 0.9% sodium chloride	=	200/25 mg/mL *(Not for testing)*
2	1mL of Piperacillin/Tazobactam 200/25 mg/mL	+	9mL 0.9% sodium chloride	=	20/2.5mg/mL **(neat)**
3	1mL of Piperacillin/Tazobactam 20mg/mL	+	9mL 0.9% sodium chloride	=	2/0.25mg/mL **(1:10)**

Amoxicillin/Clavulanate 20/2.5 mg/mL - Neat 1:10 = 2/0.25 mg/mL					
Step	**Drug**	**+**	**Diluent**	**=**	**Concentration For Skin Testing**
1	Amoxicillin/Clavulanate 1g/0.2g powder	+	9.1mL 0.9% sodium chloride	=	100/20 mg/mL *(Not for testing)*
2	1mL of Amoxicillin/Clavulanate 100mg/mL	+	4mL 0.9% sodium chloride	=	20/4mg/mL **(neat)**
3	1mL of Amoxicillin/Clavulanate 20mg/mL	+	9mL 0.9% sodium chloride	=	2/0.4mg/mL **(1:10)**

Cefuroxime 10mg/1mL - Neat 1:10 = 1mg/mL					
Step	**Drug**	**+**	**Diluent**	**=**	**Concentration For Skin Testing**
1	Cefuroxime 750 mg powder	+	7 mL 0.9% sodium chloride	=	100 mg/mL *(Not for testing)*
2	1mL of Cefuroxime 100mg/mL	+	9mL 0.9% sodium chloride	=	10mg/mL **(neat)**
3	1mL of Cefuroxime 10mg/mL	+	9 mL 0.9% sodium chloride	=	1mg/mL **(1:10)**

Cefazolin 10mg/1mL - Neat 1:10 = 1mg/mL					
Step	**Drug**	**+**	**Diluent**	**=**	**Concentration For Skin Testing**
1	Cefazolin 1000mg powder	+	9.5mL 0.9% sodium chloride	=	100mg/mL *(Not for testing)*
2	1mL of Cefazolin 100mg/mL	+	9mL 0.9% sodium chloride	=	10mg/mL **(neat)**
3	1mL of Cefazolin 10mg/mL	+	9 mL 0.9% sodium chloride	=	1mg/mL **(1:10)**

Cefepime 10 mg/1mL – Neat 1:10 = 1mg/mL					
Step	**Drug**	**+**	**Diluent**	**=**	**Concentration For Skin Testing**
1	Cefepime 1000mg powder	+	8.7mL 0.9% sodium chloride	=	100mg/mL *(Not for testing)*
2	1mL of Cefepime 100mg/mL	+	9mL 0.9% sodium chloride	=	10mg/mL **(neat)**
3	1mL of Cefepime 10mg/mL	+	9mL 0.9% sodium chloride	=	1mg/mL **(1:10)**

Ceftriaxone 10mg/1mL - Neat 1:10 = 1mg/mL					
Step	**Drug**	**+**	**Diluent**	**=**	**Concentration For Skin Testing**
1	Ceftriaxone 1000mg powder	+	9.4mL 0.9% sodium chloride	=	100mg/mL *(Not for testing)*
2	1mL of Ceftriaxone 100mg/mL	+	9mL 0.9% sodium chloride	=	10mg/mL **(neat)**
3	1mL of Ceftriaxone 10mg/mL	+	9mL 0.9% sodium chloride	=	1mg/mL **(1:10)**

Ceftazidime 20mg/1mL - Neat 1:10 = 2mg/mL					
Step	**Drug**	**+**	**Diluent**	**=**	**Concentration For Skin Testing**
1	Ceftazidime 1000mg powder	+	9.1mL 0.9% sodium chloride	=	100mg/mL *(Not for testing)*
2	1mL of Ceftazidime 100mg/mL	+	9mL 0.9% sodium chloride	=	10mg/mL **(neat)**
3	1mL of Ceftazidime 10mg/mL	+	9mL 0.9% sodium chloride	=	1mg/mL **(1:10)**

Gentamicin 4mg/1mL - Neat 1:10 = 0.4mg/mL					
Step	**Drug**	**+**	**Diluent**	**=**	**Concentration For Skin Testing**
1	Gentamicin 80 mg/2 mL vial	+	8 mL 0.9% sodium chloride	=	8 mg/mL *(Not for testing)*
2	1mL of Gentamicin 8 mg/mL	+	1 mL 0.9% sodium chloride	=	4mg/mL **(neat)**
3	1mL of Gentamicin 4 mg/mL	+	9mL 0.9% sodium chloride	=	0.4mg/mL **(1:10)**

Vancomycin 50mg/1mL - Neat 1:10 = 5mg/mL					
Step	**Drug**	**+**	**Diluent**	**=**	**Concentration For Skin Testing**
1	Vancomycin 500mg powder	+	10 mL 0.9% sodium chloride	=	50 mg/mL (neat)
2	1mL of Vancomycin 50mg/mL	+	9mL 0.9% sodium chloride	=	5 mg/mL (1:10)
3	1mL of Vancomycin 5 mg/mL	+	9mL 0.9% sodium chloride	=	0.5 mg/mL (1:100)
4	1mL of Vancomycin 0.5 mg/mL	+	9mL 0.9% sodium chloride	=	0.05 mg/mL (1:1000)

Clavulanic Acid (Clavulanate potassium lyophilised powder)					
Step	**Drug**	**+**	**Diluent**	**=**	**Concentration For Skin Testing**
1	Clavulanate potassium lyophilised powder 20 mg	+	1 mL physiological saline solution	=	20 mg/mL (neat)
2	0.4 mL Clavulanate potassium 20 mg/mL	+	1.2mL physiological saline solution (new vial)	=	5 mg/mL
3	0.13 mL Clavulanate potassium 5 mg/mL	+	1.2mL physiological saline solution (new vial)	=	0.5 mg/mL

Meropenem 10mg/1mL - Neat **1:10 = 1mg/mL**					
Step	**Drug**	**+**	**Diluent**	**=**	**Concentration For Skin Testing**
1	Meropenem 1000mg powder	+	20 mL 0.9% sodium chloride	=	50 mg/mL *(Not for testing)*
2	1mL of Meropenem 50mg/mL	+	4mL 0.9% sodium chloride	=	10mg/mL **(neat)**
3	1mL of Meropenem 10mg/mL	+	9mL 0.9% sodium chloride	=	1mg/mL **(1:10)**

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Appendix 2: β-Lactam Antibiotic Skin Testing Preparation Form

South Eastern Sydney Local Health District

NSW GOVERNMENT

Antibiotic Skin Testing Preparation Form

AFFIX PATIENT LABEL HERE	**CLINICIAN:**
	DATE OF TESTING:
	SIGNATURE:
	PREPARED BY:
	SIGNATURE:

THE FOLLOWING ANTIBIOTICS ARE TO BE PREPARED FOR TESTING

(Consultant to tick allergens to be prepared by RN)

SKIN PRICK TESTING			
Histamine 10 mg/mL		Amoxicillin/Clavulanate (20/4 mg/mL)	
Normal Saline		Cefuroxime (10mg/ml)	
Penicillin Major (BP-OL) (1:1)		Cefazolin (10mg/ml)	
Penicillin Minor (MD) (1:1)		Cefepime (10mg/ml)	
Benzylpenicillin (6mg/mL)		Ceftriaxone (10mg/ml)	
Ampicillin (20mg/mL)		Ceftazidime (10 mg/mL)	
Amoxicillin (20 mg/mL)			
Flucloxacillin (2 mg/mL)			
Piperacillin/Tazobactam (20/2.5 mg/mL)			
INTRADERMAL TESTING ***(**Can use the same dilutions as prepared for skin prick)***			
Normal Saline			
Penicillin Major (BP-OL) (1:1)		Penicillin Major (BP-OL) 1:10	
Penicillin Minor (MD) (1:1)		Penicillin Minor (MD) 1:10	
Benzylpenicillin (6mg/mL)		Benzylpenicillin (0.6mg/ml)	
Ampicillin (20mg/mL)		Ampicillin (2mg/ml)	
Amoxicillin (20 mg/mL)		Amoxicillin (2 mg/mL)	
Flucloxacillin (2 mg/mL)		Flucloxacillin (0.2 mg/mL)	
Piperacillin/Tazobactam (20/2.5 mg/mL)		Piperacillin/Tazobactam (2/0.25 mg/mL)	
Amoxicillin/Clavulanate (20/4 mg/mL)		Amoxicillin/Clavulanate (2/0.4 mg/mL)	
Cefuroxime (10mg/ml)		Cefuroxime (1mg/ml)	
Cefazolin (10mg/ml)		Cefazolin (1mg/ml)	
Cefepime (10mg/ml)		Cefepime (1mg/ml)	
Ceftriaxone (10mg/ml)		Ceftriaxone (1 mg/ml)	
Ceftazidime (10 mg/mL)		Ceftazidime (1 mg/mL)	
Version 3 June 2023	*Prepared by : K.Thomas CNC, R Sullivan ID SM O, J Earnshaw CNC*		

Appendix 3:

Skin Prick Testing (SPT) and Intradermal Testing (IDT) for the diagnosis of immediate IgE mediated allergy

PERFORMANCE ASSESSMENT TOOL - FOR AMBULATORY CARE REGISTERED NURSES

Candidate Name (please print):	**Employee number:**
Assessor:	**Candidate Designation:**
Date:	**Ward/Unit:**

NB Prior to undertaking this assessment the staff member MUST have read/completed and signed acknowledgement and understanding of the following:

Clinical Business Rule	Signature	Date
For all sites:		
Australasian Society of Clinical Immunology and Allergy (ASCIA): Skin Prick Testing Guide for the Diagnosis of Allergic Disease		
ASCIA Penicillin allergy e-training- Certificate provided Y N		
For St George Hospital:		
SGH BR 555 Antibiotic Allergy – Antibiotic Desensitisation		
SGH BR 556 Antibiotic Allergy – Antibiotic Oral Challenge and De-Labelling Of Antibiotic Allergies		
SGH BR 520 Anaphylaxis- Acute, Management of the Adult Patient - SGH		
For Prince of Wales Hospital:		
POWH CLIN005 Management of Deteriorating Patient – Clinical Emergency Response System (CERS)		

ASSESSMENT CRITERIA (please tick appropriate box)	Y	N	N/A
ORGANISATION Observed to prepare all equipment for SPT or IDT as per CBR? • Resus trolley with anaphylaxis kit • Dilution and labelling of allergens • Skin testing equipment			
PATIENT IDENTIFICATION AND MEDICATION CHECK (PRIOR to SPT procedure) Observed to prepare and identify following according to CBR • Clear explanation of SPT procedure and check for recent antihistamines			
• Correct identification of patient • Completion of consent form • Completes baseline observations • Ensures patient is seated with volar surface of the forearm facing up. If there is any visible oil/debris on the surface of the skin, ask patient to gently wash with soap and water, then blot dry			
SPT PROCEDURE Observed to complete following tasks as per ASCIA Guide • Selects SPT allergens according to request on SPT form or medication chart • Marks sites ensuring at least 3cm from the cubital fossa and 5cm from the wrist. • Allergen extract drops placed at least 2cm apart to avoid overlapping and cross contamination- tip of the dropper should not touch the skin • Uses correct prick technique, ensuring no or minimal bleeding at site. Concurrently wipes the lancet between pricks or uses new lancet each time (preferable) to prevent cross contamination • Measures the wheal and flare using wheel/ruler and records results in patient clinical notes • SPT results are to be interpreted by Consultant after 15 minutes and confirm ability to proceed to IDT stage 1 At any time during testing if large local reactions occur or clinical concern of patient's condition, doctor is to be informed and when necessary emergency 2222 is called			
IDT PROCEDURE Observed to complete the following tasks as per ASCIA Guide • Selects IDT allergens according to request on IDT form or medication chart • Marks sites for IDT ensuring at least 3cm from the cubital fossa and 5cm from the wrist			

• Dons safety goggles • Correct intradermal injection technique used ensuring that needle is inserted into the dermis to produce a small bleb. • Measures bleb using wheel/ruler and record baseline measurement in patient clinical notes. • After 20 minutes, measure the bleb and/or wheal using wheel/ruler and record in patient clinical notes • IDT results are to be interpreted by Consultant after 20 minutes and confirm ability to proceed to IDT stage 2 • IDT stage 2 results are to be interpreted by Consultant after 20 minutes. • Patient must remain under observation for a further 20 minutes following completion of testing			
• On completion of skin testing, cleans the IDT site using alcohol wipes and applies steroid cream for itch if required • Patient provided with written information for specific allergy and follow up information if required			
HANDWASHING/PPE • Observed to perform all moments of hand hygiene • Observed appropriate use of required PPE			

Assessment achieved:	**YES** ☐ **NO**
Date for reassessment:	
Assessor comments/feedback:	
Assessors signature:	
Candidates signature:	
When assessment is completed please forward form to your clinical educator or manager	

Appendix 4: SPT & IDT Recording Form

Patient Name: Medical Officer ordering test:

Date of Birth: Clinician performing test:

	…… /……. /20……		Skin Prick		Intradermal		
	Time of administration						
	Time of result						
No.		**Conc.**	**Result (mm)**	**Conc.**	**Baseline (mm)**	**Result (mm)**	**Batch No. / Expiry**
	Normal Saline						
	Histamine	10 mg/mL			*Not applicable*	*Not applicable*	
	Penicillin major determinant	**Neat** (1:1)		**Neat** (1:1)			
				1:10			
	Penicillin minor determinant	**Neat** (1:1)		**Neat** (1:1)			
				1:10			
	Benzylpenicillin (6 mg/mL)	**Neat** (6 mg/mL)		**Neat** (6 mg/mL)			
				1:10 (0.6 mg/mL)			
	Ampicillin (20mg/mL)	**Neat** (20 mg/mL)		**Neat** (20 mg/mL)			
				1:10 (2 mg/mL)			
	Cefuroxime (10 mg/mL)	**Neat** (10 mg/mL)		**Neat** (10 mg/mL)			
				1:10 (1 mg/mL)			
	Cefazolin (10 mg/mL)	**Neat** (10 mg/mL)		**Neat** (10 mg/mL)			
				1:10 (1 mg/mL)			
	Ceftriaxone (10 mg/mL)	**Neat** (10 mg/mL)		**Neat** (10 mg/mL)			
				1:10 (1 mg/mL)			

Appendix 5: Non-irritating test concentrations for beta lactam antibiotics[2,3,4]

Drug	SPT	IDT
Diater PPL	Neat	Neat
Diater MDM	Neat	Neat
Benzylpenicillin (Penicillin G)	6 mg/mL	6 mg/mL
Amoxycillin	20 mg/mL	20 mg/mL
Ampicillin	20 mg/mL	20 mg/mL
Diater Clavulanate®	Neat	5 mg/mL, 20mg/mL
Flucloxacillin	2 mg/mL	2 mg/mL
Cephalosporins	2 mg/mL	20 mg/mL*

* European guidelines recommend 2mg/ml for all cephalosporins