a: Antibiotic allergy testing for patients with a history of immediate or unknown hypersensitivity

History of immediate reaction to a penicillin or another beta-lactam
(For non-beta-lactam immediate reaction testing performed on case-by-case basis)

Assessment of antibiotic needs then targeted skin testing

- **Negative to all reagents**
  - **Isolated + to specific penicillin** (e.g., amoxicillin, flucloxacillin)
  - **Avoid specific penicillin**
  - **Penicillin VK oral provocation**
  - **Neg**
    - Safe to take penicillins
    - Avoid all penicillins
  - **Positive**
    - **History of reaction to specific penicillin** (aminopenicillin, anti-staphylococcal penicillin)

- **Isolated + to specific cephalosporin** (e.g., ceftriaxone, cefazolin)
  - **Avoid specific cephalosporin**
  - **Penicillin VK oral provocation**
  - **Neg**
    - Safe to take penicillins NOT isolated +
    - Avoid all penicillins – see cephalosporin testing
  - **Positive**
    - **History of reaction to specific cephalosporin**
    - **Evaluate cephalosporin SPT/IDT**

- **Positive BP/PPL/MDM/ +/other penicillins**
  - **Avoid all penicillins**
  - **Penicillin VK oral provocation**
  - **Neg**
    - Safe to take penicillins NOT isolated +
    - Avoid all penicillins
  - **Positive**
    - **Consider other beta-lactam SPT/IDT and oral provocation**
    - Use with caution in patients with recent anaphylaxis (>2 years) or reaction involving hypotension or respiratory compromise or >1 adrenaline IM dose
    - **Cephalaxin or cefuroxime provocation**
    - **Neg**
      - Safe to take cephalosporins
    - **Positive**
      - Avoid cephalosporins

Specific beta-lactam oral or IV challenge for required Alox (SPT/IDT negative)
Avoid oral provocation if history of anaphylaxis unless antibiotic required

**Note**: For oral provocation outside penicillin VK, consider 2-step oral provocation if challenging a patient with a history of anaphylaxis.

**Note**: For patients with an unspecified penicillin allergy that occurred prior to the advent of amoxicillin release in Australia (1972), penicillin V challenge only performed. If penicillin allergy unspecified occurred post amoxicillin release, patient will undergo sequential penicillin V and amoxicillin challenge.

**Note**: For patients with a history of mild immediate hypersensitivity to sulfonamide antibiotics a single dose challenge with Bactrim LIQUID (200mg/40mg in 5 ml) is provided (1ml [40/8 – SMX-TMP] then 9ml [360/72])
Antibiotic allergy testing for patients with a history of delayed hypersensitivity

Adapted from references listed (with permission)[1-4].

Abbreviations: OP, oral challenge/provocation; P-OP, prolonged oral provocation; IDT, intradermal testing; SPT, skin prick testing; SCAR, severe cutaneous adverse drug reactions; BP, penicillin G; PPL, Diabetes major determinant; MDM, minor determinant mixture.

Note 1: If a patient has a history of a beta-lactam allergy and is known to tolerate alternative beta-lactams, prolonged oral provocations (5 days) can be performed following negative SPT/IDT outside of demonstrated schematic, tailored to known infection history and current/future antibiotic requirements.

Note 2: In patients with > 1 positive delayed IDT to a penicillin and cephalosporin that don’t share identical/similar R1 side chain (e.g. cefuroxime/ceftriaxone, cefepime/ceftriaxone, aztreonam/cefazidime, cephalothin/penicillin G), oral challenges can be undertaken to beta-lactams that are dissimilar in R1 structure.
If history of drug reaction with eosinophilia and systemic symptoms (DRESS), fixed drug eruption (FDE) or acute generalised exanthematous pustulosis (AGEP) then delayed intradermal and oral provocations as required. If Steven Johnson syndrome (SJS) or toxic epidermal necrolysis (TEN) patch testing of implicated antimicrobials applied. Antibiotic provocations following testing in SCAR tailored to specific patient antibiotic requirements.

b If history of mild-moderate delayed hypersensitivity (not SCAR), single dose oral provocation may be performed directly post negative SPT/IDT, followed by 5-day provocation. If severe hypersensitivity or SCAR then only perform oral provocations post delayed IDT readings.

c If patient tolerates penicillins and aminopenicillins and isolated positive to a cephalosporin can consider further oral cephalosporin provocations with antibiotics that differ in R1/R2 side chains.

d Antibiotic oral duration for 5 days at lowest therapeutic dose. No intravenous or intramuscular challenges. In patients with a history of non-SCAR allergy to sulphonamide and trimethoprim-sulfamethoxazole (TMPS-SMX) required, one single strength TMP-SMX challenge recommended, without prior skin testing. In patients with other non-beta lactam delayed allergy phenotypes a combination of delayed IDT, patch testing and oral provocations individualised for patient antibiotic requirements. For patients with positive isolated cephalosporin IDT or oral provocation, subsequent IDT/OC can be performed to cephalosporins with different R1/R2 side chains.

e Provide recommendations for antibiotic usage outside of penicillins and cephalosporins.

f Cephalexin 250mg BD for 5 days or cefuroxime 250mg BD for 5 days. If patient was positive to aminopenicillin on IDT or oral challenge then avoid challenge with aminocephalosporin (e.g. cephalexin, ceftaclor).

References