



**Service Priorities and Programmes**  
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**Drug challenge test for proper drug allergy labeling in paediatric patients**

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**Introduction**

Suspected drug allergy is a common clinical problem. While drug allergy labeling may reduce future adverse drug reaction, it also limits the choice of drugs for patients, forcing physicians to resort to more expensive drugs or drugs with higher toxicities or side-effects. Hence a confirmatory test is needed in order to minimize inaccurate labeling.

**Objectives**

(1) To employ drug challenge test in an inpatient setting either to confirm or exclude alleged drug allergy. (2) To find safe alternative drugs for future use.

**Methodology**

Patient data of the Paediatric Allergy Service Clinic in 2012-2013 were prospectively collected and reviewed. For patients with dubious history of drug allergy, parental consents were obtained to perform an inpatient drug challenge test. The procedure was performed by a trained nursing staff and a paediatrician with experience in dealing with anaphylactic reaction. The "culprit" drug or a potentially safe alternative drug was given in incremental doses at regular intervals until the usual dosage was given. Vital signs and clinical condition were closely monitored for several hours. Patients with negative reaction will have the drug allergy message in the Clinical Management System (CMS) deleted. Patient with a positive challenge will be labeled as confirmed drug allergy.

**Result**

Between January 2012 and December 2013, twenty six patients (15 male, 11 female, age 2.3 – 14 years) with labels of drug allergy in the CMS were assessed. Suspected drugs included penicillins (12), cephalosporins (6), macrolides (2), paracetamol (5), non-steroid anti-inflammatory drug (1) and other drugs (3). Twenty nine drug challenge procedures were performed. Among the test drugs, twenty two culprit drugs and seven alternative drugs were used respectively. Four challenges failed, all involving culprit drugs, because of rash or lip swelling immediately afterwards. The success rate of drug challenge was 86.2% of all drugs tested (80% among culprit test

drugs), enabling the drug allergy label to be deleted. No systemic reaction was seen. Challenge tests done on alternative drugs were all successful. Conclusion: drug challenge test is an important and useful diagnostic tool in paediatric clinical allergy. Majority of the labels of drug allergy are unnecessarily given, and that can be removed after a drug challenge test. Patient with suspected drug allergy should undergo an inpatient drug challenge by experienced personnel, either using the culprit drug or a potentially safe alternative drug for future use.