Utilisation of a national point prevalence survey of recorded penicillin allergy to inform a penicillin de-labelling process

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Introduction
Mislabelling of penicillin allergy is associated with sub-optimal antibiotic choice, increased length of stay in hospital, increased treatment cost and poorer outcomes, including Clostridium difficile infection and antimicrobial resistance. The Scottish Antimicrobial Prescribing Group (SAPG) initiated a programme of work supported by a multidisciplinary steering group to develop a process for de-labelling of patients with documented but unfounded penicillin allergy. As a first step, an evaluation of the extent and nature of penicillin allergy recording in patients admitted to Scottish hospitals was carried out.

Method
A point prevalence survey (PPS) of penicillin allergy labelling was undertaken using a bespoke audit tool and a draft national algorithm designed to identify patients suitable for de-labelling.

Data were collected for a maximum of 20 patients per ward in admission wards in 10 NHS board areas over a one-week period during February and March 2018. All eligible patients were screened for a penicillin allergy label and information was collected on the nature and timing of their reaction to penicillin and any antibiotics prescribed during their current admission.

Data were analysed using Microsoft Excel and results from adult wards are presented in charts 1-3.

Results
- 20 wards were included in the PPS (eight medical admissions, nine surgical admissions, two combined assessment units and one medicine for the elderly).
- 1,871 patients were reviewed and 188 patients (10%) had a penicillin/betalactam allergy documented.
- The mean age of the patients with a documented allergy was 67 years and 64% were females.
- 48% of patients had an antibiotic prescribed during the current admission.
- Patients’ adverse reactions were associated most commonly with penicillin (52%), amoxicillin (15%) and was unknown in 12% of patients.
- The route was oral in 67% of patients, parenteral in 8% and unknown in 25%.
- The sources of information used to check details of the allergy included the patient in 58% of cases, GP record (44%), medicines reconciliation form (34%) and hospital records (24%).
- The chronology of the reactions is shown in Chart 1 and the timing in relation to administration of the penicillin antibiotic is shown in Chart 2. These data show that for a majority of patients the reaction happened more than 10 years ago and timing in relation to administration was unknown.
- Using the draft algorithm, allergy types were assigned as shown in Chart 3.
- In 47% of patients with an ‘uncertain’ allergy, the reaction type was unknown, i.e. no record and patient did not recall what happened.

Conclusions
The results of the PPS have allowed us to establish a baseline of prevalence, nature and impact on antibiotic treatment of a penicillin allergy label for patients in Scotland. For a large number of patients with uncertain or historical labelling of penicillin allergy, it is feasible to remove their allergy label using a risk-based approach to support skin testing or penicillin challenge.

We have now finalised an algorithm that will segment patients based on their reaction to a penicillin and identify those who can safely be offered a penicillin challenge test. Following appropriate governance processes, a de-labelling pilot using the algorithm will be carried out in several hospitals. Data will be collected on challenges of using the algorithm, conducting the oral challenge and communicating the result, including feedback from clinical teams and patients.