Should we be challenging penicillin allergies?
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Take home point: direct questioning of self-reported penicillin allergies reported a low level of likely true anaphylactic reactions suggesting scope for future re-challenging with penicillin antibiotics.

Rationale
Almost one third of patients admitted to hospital require antibiotics (1). Antibiotic allergy is frequently reported, most commonly, to penicillin. The correlation of self-reported allergy and true IgE mediated reactions (anaphylaxis) is poor, with true IgE-mediated allergy diagnosed on skin prick testing in only 10-15% (2).

This widespread reporting of penicillin allergy leads to the frequent use of second-line antibiotics, which are often more bacteriostatic than bacteriocidal, are broader spectrum than penicillin based antibiotics and are more expensive. Use of these non-penicillin antibiotics also introduces bacterial selection pressures potentiating resistance to important second-line treatments.

Aim
To identify the characteristics of reported penicillin allergy in our in-patient population in order to identify patients where IgE reactions were low risk and in whom beta-lactam antibiotics could be retested.

Method
40 patients admitted under acute medicine or surgery at St Richard’s Hospital with self-reported ‘penicillin allergy’ were interviewed by a single investigator using a standardised proforma.

Results
• Of the 40 patients; 70% were female and the average age was 74.8 years.
• 87.5% of patients reported an allergy to generic “Penicillin”, the remaining 12.5% knew the specific penicillin they were allergic to e.g. Flucloxacillin. (figure 1)
• More than 75% of patients had reactions >5 years previously or during childhood (figure 2).
• 72.5% of reactions occurred in the community (figure 3).
• The most frequently reported symptoms were urticaria and pruritus (figure 4).
• 42.5% of reactions lasted more than 24 hours (figure 5).
• 5% patients required adrenaline, suggesting a true penicillin allergy (figure 6).
• 25% required no treatment and 50% could not remember what treatment they had, if any, making true IgE allergy very unlikely in this group.

Discussion
Most patients had poor knowledge of their reactions and resultant treatments, perhaps reflecting that the majority of reactions occurred >5 years prior to admission. The long duration of these reactions and apparent lack of treatment, suggest that for many of the patients their reaction was not IgE mediated.

There is understandably a clinical hesitancy about challenging patients who have reported penicillin allergy due to the potential life-threatening reaction. However, this data has shown a low level of likely true anaphylactic reactions within the hospital in-patient population.

Given the current climate of increasing antibiotic resistance, few new/second line antibiotics and escalating costs of non penicillin treatments, there is now a need for clinicians to consider challenging patient allergies. With data from recent studies highlighting that IgE antibodies to beta-lactams are lost over time (2), the option to consider re-challenging allergies reported >10 years ago, within the controlled, in-patient setting is worth exploring.

Patients who are unable to clearly remember the details of their reaction to penicillin(s) continue to challenge clinicians who must decide if the “allergy” is likely to be a true IgE-mediated allergy and whether the patient could be re-challenged.

Limitations of the study
The patient sample was non-sequential therefore may not truly represent the overall hospital population. The difference between rash and urticarial rash was subjective on patient description.

Future challenges
This data will be used to help
i. Improve written documentation of in-patient allergic reactions for both parents and their GP.
ii. Expand this survey with a view to developing an algorithm to help clinicians decide when to challenge penicillin “allergy”.

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References: 1. Western Sussex Hospitals NHS Foundation Trust, Antimicrobial Prescribing Policy
2. Solensky, R. Allergy to penicillin. UptoDate December 2012

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