Improving antibiotic allergy documentation: addressing the challenge
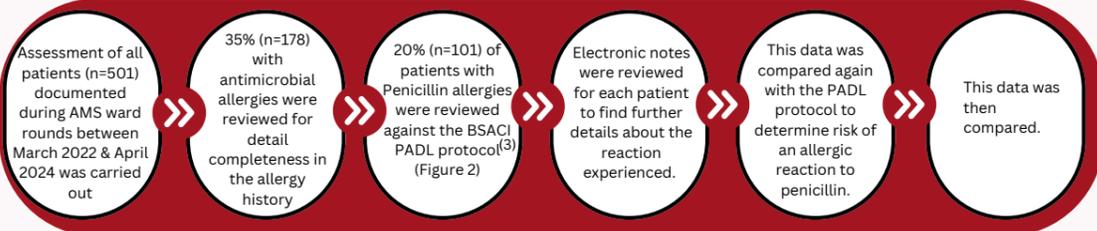
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Introduction

- ~6% of the general UK population & ~15% of hospitalized patients have a penicillin allergy.[1][2]
- ~95% of these labels are incorrect when tested.
- De-labelling false allergies can lead to optimised antimicrobial prescribing, improved patient outcomes, reduced healthcare costs, & decreased multidrug-resistant (MDR) infection rates.

- Using the **BSACI Penicillin Allergy De-Labelling (PADL) Protocol**,[3] the team aimed to review allergy histories, categorise patients by risk, & identify low-risk patients for potential PADL.
- Pharmacy technicians are heavily involved in the drug history process, & could lead the way in improving allergy history documentation to ensure accuracy & improve patient care.

Method

Figure 1- Method followed to determine detail completeness and suitability of information for potential PADL.

- Assessment of all patients (n=501) documented during AMS ward rounds between March 2022 & April 2024 was carried out
- 35% (n=178) with antimicrobial allergies were reviewed for detail completeness in the allergy history
- 20% (n=101) of patients with Penicillin allergies were reviewed against the BSACI PADL protocol[3] (Figure 2)
- Electronic notes were reviewed for each patient to find further details about the reaction experienced.
- This data was compared again with the PADL protocol to determine risk of an allergic reaction to penicillin.
- This data was then compared.

Criteria

Inclusion

- Current inpatient at UHNM at Royal Stoke or County hospitals
- All genders
- Currently receiving antimicrobial therapy
- Adult patients from 16yrs of age
- Patients have an antimicrobial allergy documented
- Patient's reviewed by AMS Pharmacy Technician During AMS ward rounds
- Patients reviewed between March 2022 and January 2024
- Patient is admitted to the ward being reviewed that day and is on the ward at the time of the AMS ward round

Exclusion

- Paediatric patients under 16yrs of age
- Receiving antimicrobial treatment long-term that was historic before admission
- 1 entry for each patient only
- Patients not on ward at the time of the AMS ward round. e.g. patient is undergoing treatment, surgical intervention or diagnostic tests.

Figure 2- Inclusion/ exclusion criteria for penicillin allergy de-labelling
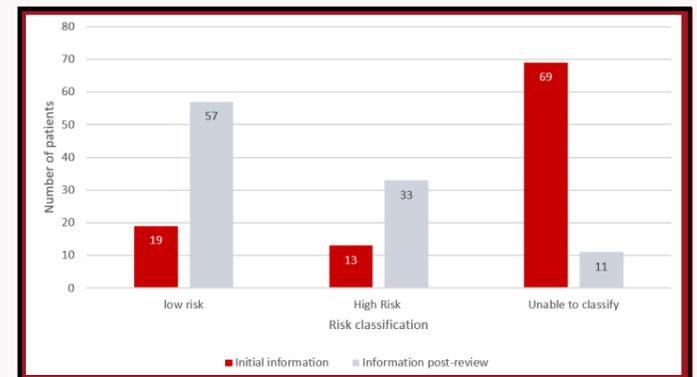
Low risk symptoms

- ✓ Minor gastro-intestinal symptoms (nausea, abdominal pain, diarrhoea)
- ✓ *Candidiasis* (Thrush)
- ✓ Minor symptoms unrelated to any form of allergic reaction, for example, headache, arthralgia, strange taste in mouth
- ✓ Family history of penicillin allergy but without personal history of allergy
- ✓ Patient has taken and tolerated the same penicillin subsequent to the index reaction
- ✓ Patient reports "benign" rash which developed more than 1 hour after the first dose of a course of penicillin
- ✓ Patient reports a childhood rash with no other history available
- ✓ Patient cannot remember what happened during index reaction but was told it was not serious and did not require hospital treatment

High risk symptoms

- ✗ Rash occurring within 1 hour of the first dose of penicillin
- ✗ Rash lasting more than 24 hours and/or affecting more than 10% of the body surface
- ✗ Rash associated with blisters, skin peeling, mucosal inflammation (eyes, mouth, genitals), purpura
- ✗ Patients reporting any symptoms suggestive of a type 1 immediate hypersensitivity reaction to penicillin including swelling, urticaria, angioedema, shortness of breath, wheeze, loss of consciousness, or collapse
- ✗ Patients who required hospital treatment and/ or adrenaline due to their reaction

Figure 3- low and high risk criteria as per the **BSACI guideline**[3] tables 1 (low risk symptoms in adults and children) and 2 (Exclusion criteria).

Results

99% had the *antimicrobial* the patient was allergic to recorded

n= 176

62% had the *nature* of the allergic reaction recorded

n= 110

3% had *a detailed reaction* recorded

n= 5

Figure 4- Results of detail completeness of allergy histories.

Results show documentation of further allergy detail is lacking & improvements must be made to allow de-labelling by non-allergists.

Figure 6-Patient's risk categorisation before & after review of electronic notes.

Results show initial information only allowed 32/101 patients to be classified into high/low risk. Post-review 90/101 patients were classified.

Bar chart — Number of patients vs Risk classification. Initial information: low risk 19, High Risk 13, Unable to classify 69. Information post-review: low risk 57, High Risk 33, Unable to classify 11.

Conclusions

1. Improved antibiotic allergy histories can be used to challenge inaccurate allergies, reduce reliance on expensive non-beta-lactam antibiotics & improve patient outcomes.

2. Pharmacy technicians are perfectly placed to document better allergy histories for patients during the medicines reconciliation process, allowing non-allergists to confidently de-label patients with spurious allergies.

3. The detail required to include/exclude patients from the de-labelling process showed the type of information required for non-allergists to potentially de-label untrue/spurious allergies. This could then be used to create training/resources for better allergy history conversations.

Next steps/ Improvements:

1. Adjust pharmacy technician **ward training packs** for allergy history taking – May 2024.

2. **Create hand-outs** for pharmacy technicians to encourage better allergy history detail –June 2024.

3. **Face-to-face Training & ongoing support** for pharmacy technicians for allergy history taking – July 2024.

4. **Implement iPortal note for documentation of allergy information** with clear questions to determine adequate detail during a patient's allergy history conversation – in progress.

5. **Consistent training reviews annually** for pharmacy technicians to encourage consistency – in progress.

6. **Implementing a de-labelling protocol for penicillin allergy by non-allergists** and to provide training to healthcare professionals to promote best practices – in progress.

7. Work with **ePMA team** to create better allergy history documentation when we go live – in progress.

Literature Cited

1. West et al. Warning: allergic to penicillin: association between penicillin allergy status in 2.3 million NHS general practice electronic health records, antibiotic prescribing and health outcomes. Journal of Antimicrobial Chemotherapy 2019;74:2075-82.

2. Shenoy et al. Evaluation and management of penicillin allergy: a review. JAMA 2019;321:188-99

3. Savic, L. et al. BSACI guideline for the set-up of penicillin allergy de-labelling services by non-allergists working in a hospital setting. Clinical & Experimental Allergy. 2022; 52(10): p.1135-41.

Further information

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