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# Identifying knowledge of penicillin allergy and barriers to penicillin allergy de-labelling in children: A multi-centre survey in the West Midlands.

## Objective

False penicillin allergy (PenA) labels result in the use of inappropriately broad spectrum antibiotics. PenA de-labelling promotes antimicrobial stewardship and optimal prescribing practices. Our study aimed to evaluate the approach of paediatric clinicians to PenA conundrums and identify the barriers in tackling false PenA labels.

## Methods

An online, anonymised survey was distributed to paediatric clinicians across the West Midlands region of the United Kingdom between 1 August and 30 September 2021 ascertaining the burden of PenA. The survey explored several domains: approach to PenA via clinical vignettes, knowledge of impact of PenA, knowledge of oral drug provocation test (DPT) and anticipated barriers to PenA de-labelling.

## Results

307 paediatric prescribers of varied clinical grades completed the survey. The majority of respondents displayed reticence around PenA de-labelling within the acute clinical setting even in low probability scenarios.

59% agree oral DPT is safe in delayed, benign rashes to penicillin. Many cited **time constraints** as limiting their ability to explore and challenge PenA labels within the acute setting. The most frequently reported barriers to de-labelling were being **unaware of a local referral pathway, a lack of knowledge around direct oral provocation testing** and a desire to 'play it safe'.

### Reported barriers to delabelling

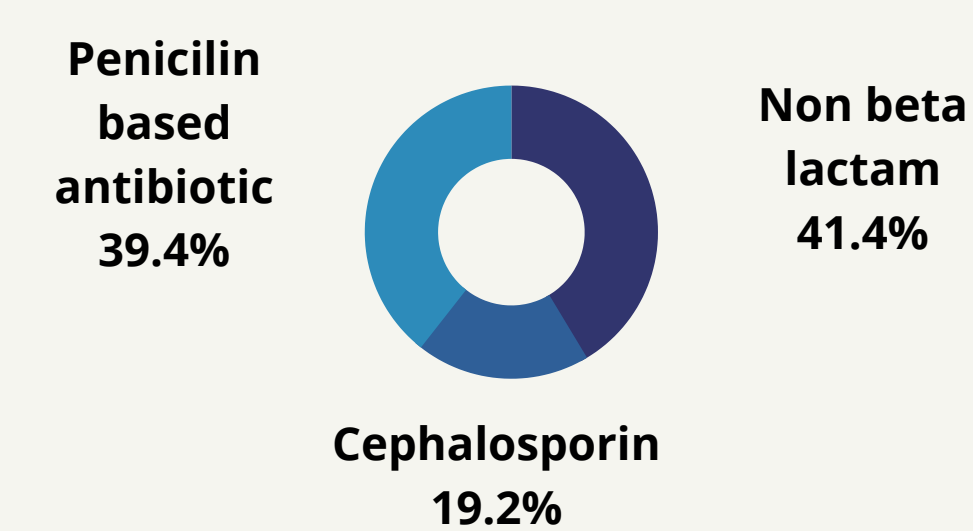
#### Unaware of an antibiotic allergy referral pathway



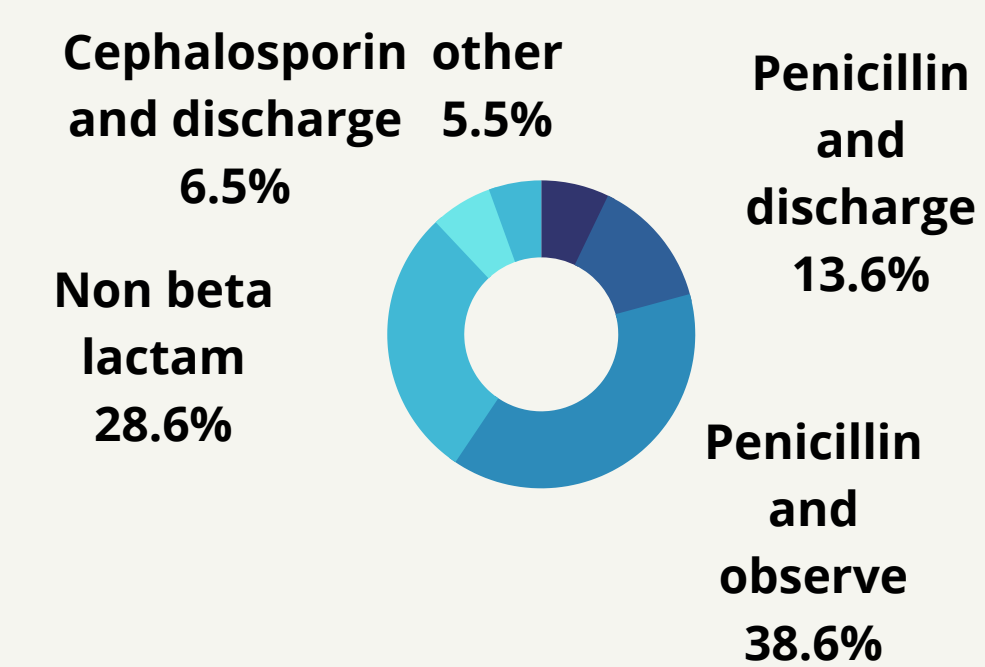
#### Lack of knowledge around direct oral provocation testing



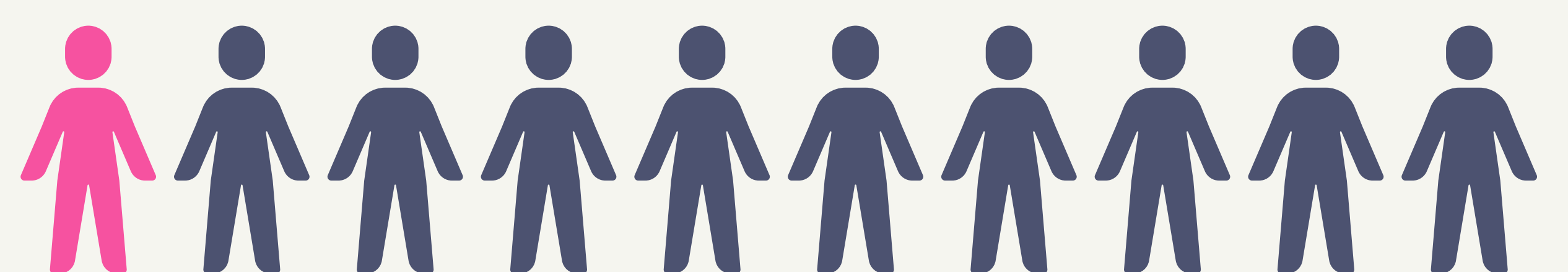
### Clinician prescribing preferences where family history of PenA provided



### Clinician prescribing preferences with delayed onset maculopapular rash



### 1 in 10 clinicians reported knowledge of local PenA guideline



## Discussion

The identification of a true PenA is crucial to avert life threatening events. This must be balanced with the knowledge that on oral DPT, only 1 out of 10 children who carry a PenA label are confirmed as having true allergy. Unfortunately many are not referred for testing and thus, carry false PenA labels into adulthood. De-labelling in adulthood is often more complex; these labels have been reinforced by decades of avoidance of penicillins.

Failing to address or appropriately refer for further evaluation of PenA label carries its own risk of harm. PenA is associated with a prolonged hospital length of stay, increased postoperative complications, an increased likelihood of treatment failure and increased risk of infections such as *C difficile*, MRSA and VRE.

Parental reports of PenA are often inconsistent with true allergy when an adequate history is taken. Optimal antibiotic allergy education for clinicians with allergy focused history could support de-labelling, reduce healthcare costs and improve outcomes for patients.

## Conclusions

The respondents to this study displayed both a desire and need for further allergy education. The caution noted around challenging false PenA labels in prescribing scenarios was consistent with previous studies.

Local, regional, or national guidelines and clear referral pathways could support clinicians' risk assessments and decision making around reported PenA and benefit both patient and healthcare trust by improving antimicrobial stewardship and reducing costs.

### References

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