

# CAPTURE: ChAllenging Penicillin Allergy staTUs - a REview with patient

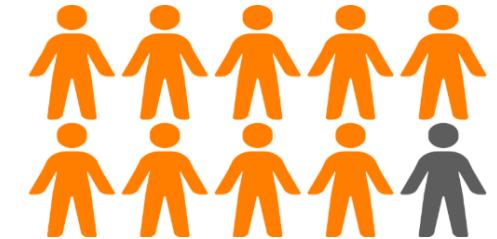
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Betsi Cadwaladr University Health Board

# How common is Penicillin Allergy ?

- 6% in community<sup>1</sup> but 10-20% in hospital<sup>6</sup>
- Only 1 in 10 is truly allergic to penicillin<sup>9</sup>
- Up to 80% wane over time after 10 years<sup>10-11</sup>
- BCUHB audit 2023/2024 showed 7.3% in community
- 35% had nature of allergy documented. Of those, 23% showed true nature of allergy



1. West JAC 2019 <https://doi.org/10.1093/jac/dkz127>
2. Powell JHI 2019 <https://doi.org/10.1016/j.jhin.2018.11.020>
3. Powell JHI 2019 <https://doi.org/10.1016/j.jhin.2021.04.011>
4. Blumenthal BMJ 2018 [www.bmjjournals.org/content/361/bmj.k2400](http://www.bmjjournals.org/content/361/bmj.k2400)
5. Jani 2020 BJCP <https://bpspubs.onlinelibrary.wiley.com/doi/full/10.1111/bcp.14190>
6. Justo 2019 Pharmacy <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6789445/>
7. Powell JHospInf 2020 [https://linkinghub.elsevier.com/retrieve/pii/S0195-6701\(20\)30282-6](https://linkinghub.elsevier.com/retrieve/pii/S0195-6701(20)30282-6)
8. Kaminsky 2022 JACI-IP <https://doi.org/10.1016/j.jaip.2022.08.027>
9. BSACI guideline 2022 <https://doi.org/10.1111/cea.14217>
10. Ponvert EAACI 2006 <https://doi.org/10.1111/j.1398-9995.2006.01246.x>
11. Shenoy JAMA 2019 [10.1001/jama.2018.19283](https://doi.org/10.1001/jama.2018.19283)

# Harms of spurious penicillin allergy labels

## Penicillin allergy labels are linked to:

- extra 6 deaths per 1000 adult patients in the year after receiving an antibiotic<sup>1</sup>
- 8% more likely to die & 10% more to need ITU care from pneumonia<sup>8</sup>
- 7x more meropenem prescribed: 7% vs 1% no penicillin allergy label<sup>2</sup>
- 4.7x more likely to receive Watch or Reserve antibiotic<sup>3</sup>
- 70% more MRSA colonisation / infections<sup>4</sup> & 26% more *C.difficile* infections<sup>4</sup>
- 5.5% longer length of stay in hospital, 28% increase in antibiotic prescribing costs<sup>7</sup>
  - ✓ Delabelling 50% of patients (750 beds hospital) would save:

Antibiotic costs saving	Excess bed days saving
£5501	£503,932

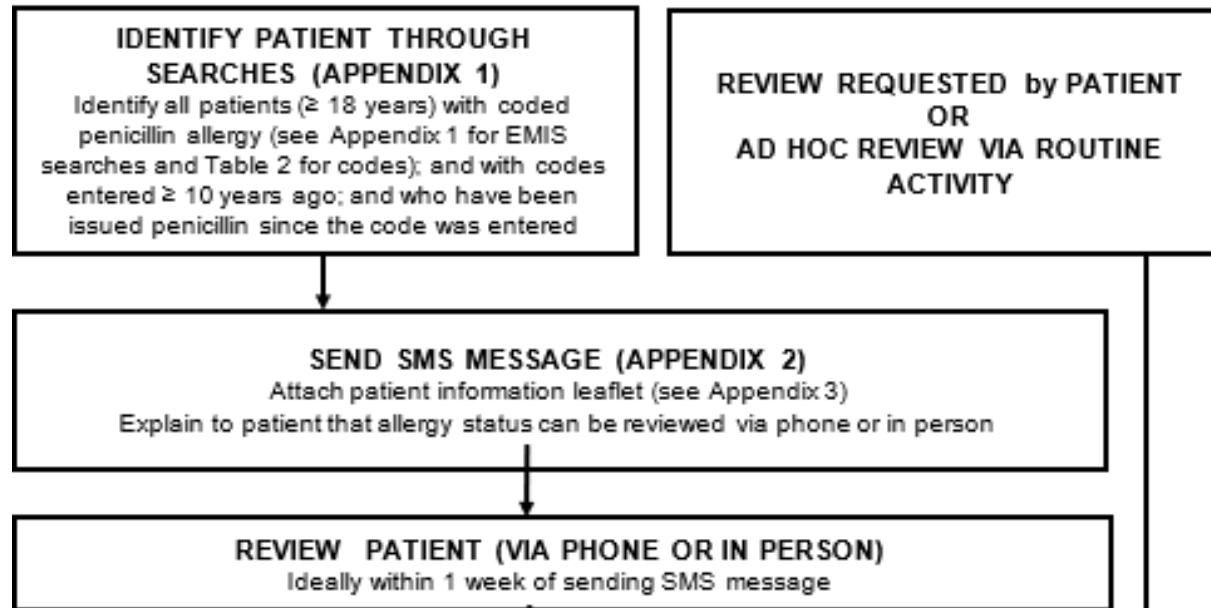
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4. Blumenthal BMJ 2018 [www.bmjjournals.org/content/361/bmj.k2400](http://www.bmjjournals.org/content/361/bmj.k2400) 5. Jani 2020 BJCP <https://bpspubs.onlinelibrary.wiley.com/doi/full/10.1111/bcp.14190> 6. Justo 2019 Pharmacy <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6789445/> 7. Powell JHospInf 2020 [https://linkinghub.elsevier.com/retrieve/pii/S0195-6701\(20\)30282-6](https://linkinghub.elsevier.com/retrieve/pii/S0195-6701(20)30282-6) 8. Kaminsky 2022 JACI-IP <https://doi.org/10.1016/j.jaip.2022.08.027> 9. BSACI guideline 2022 <https://doi.org/10.1111/cea.14217> 10. Ponvert EAACI 2006 <https://doi.org/10.1111/j.1365-9995.2006.01246.x> 11. Shenoy JAMA 2019 <https://doi.org/10.1001/jama.2018.19283>

# What did we set out to do ?

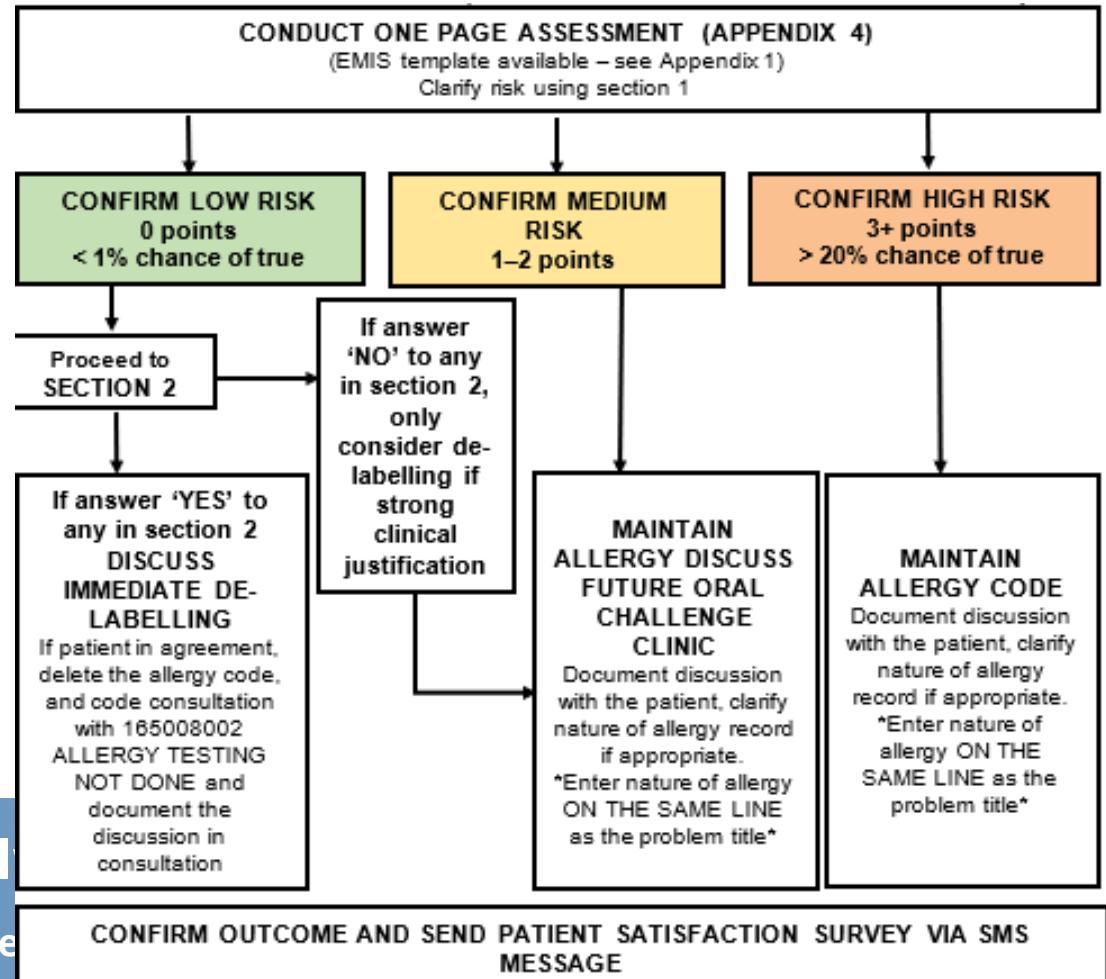
- To develop a practical guide to support safe de-labelling in the community for Wales
- December 2024 – The PHW history based penicillin allergy de-labelling task & finish group is set up
  - Chaired by Dr Laurence Gray, Consultant Clinical Pharmacologist CAVHB
  - Vice chair by Clara Tam, Antimicrobial Pharmacist BCUHB
  - Other Members: Consultant in immunology, out of hours/111, GP, Welsh Ambulance service, community pharmacy, DHCW, AWTTTC and antimicrobial pharmacists and technicians

# Process + One page assessment

## Part 1



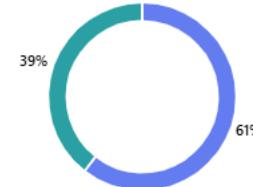
## Part 2



76 patients identified by EMIS search  
55 patients reviewed (25 – Betsi & 30 – Powys)  
21 were unable to contact (all from Betsi)

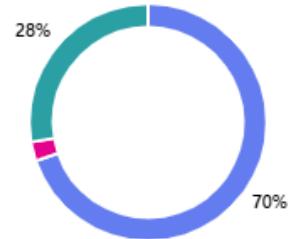
1. Health Board

● Betsi Cadwaladr	46
● Cardiff & Vale	0
● Powys	30
● Swansea Bay	0



4. Method of consultation

● Telephone	53
● Face to face	2
● No response	21



Outcome:  
34 (62%) de-labelled

Potentially  
82% can be de-labelled

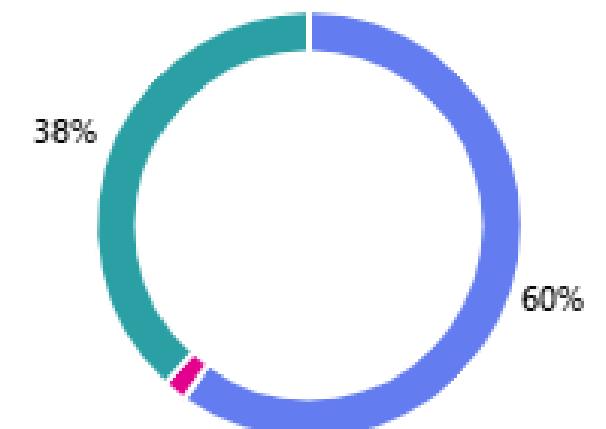
Outcome	PENFAST score	Number of patient	Reason
<b>Unsuitable for de-labelling</b>	0	11 (20%)	Tolerated a penicillin but not the same as index penicillin or amoxicillin (if unknown index penicillin)
<b>Unsuitable for de-labelling</b>	0	2	Patient did not consent
<b>De-labelled based on judgement</b>	1 (received antihistamine)	1	Taken and tolerated amoxicillin

- Yes - suitable for de-labelling based on assessment criteria and discussed removing label
- Yes - suitable for de-labelling based on my own clinical judgement and discussed removing label
- No - not suitable for removing label

33

1

21



# Impact

Patient voice 1: This is very good. I have been asking for someone to review my penicillin allergy for a long time but no one wanted to do anything with it.

Patient voice 2: This is a great initiative. I have a social medica account. I would like to share this with the others.

- Patient survey showed 5 stars experience

Type of spending	Cost avoidance (£)
Hospital stay	£320,255
Antibiotic spend	£3496

## Impact on individual health outcomes:

A penicillin record was associated with 6 in 1000 more deaths and 1 in 1000 more patients with MRSA. Our initial pilot had 34 patients delabelled, this has **avoided**:

- 204 deaths in 1000 patients
- 34 patients with MRSA in 1000 patients

# Next steps

- Aim for All Wales TTC publication in May 2026
- Link with University to analyse impact on economic, health outcome and reduction in antimicrobial resistance
- Funded nationally or by health board to increase uptake

## Challenging Penicillin allergy status - A REview with patient

Name:  
Patient number:  
NHS number:  
Date of Birth:

Over 2.7 million people in the UK are incorrectly labelled as having a penicillin allergy. This can cause harm and lead to worse health outcomes. By completing the following assessment, it is possible to identify people who are not truly allergic to penicillin and discuss removing this label with your patient.

### Section 1:

Patient has an allergy or adverse drug reaction to penicillin on record?

Yes - proceed  No - STOP

Which penicillin was involved?  Unknown or  Specify: [Click or tap here to enter text.](#)

Details related to index reaction: [Click or tap here to enter text.](#)

Exclusion criteria: Under 18 years or unable to give consent

Was this suspected allergy within the last 5 years?  Yes (2 points)  No (0 points)

Anaphylaxis or angioedema?  Yes (2 points)  No (0 points)

OR

Severe cutaneous adverse reaction? \*

Was treatment required for reaction? (e.g hospital admission, antihistamine, steroid or adrenaline)  Yes (1 points)  No (0 points)

\* Steven-Johnson Syndrome/Toxic Epidermal Necrolysis, Acute generalised exanthematous pustulosis (AGEP), Drug Reaction with Eosinophilia & Systemic Symptoms (DRESS), Any severe delayed rash with mucosal involvement

### Total score:

0 points [Proceed to section 2](#) There is <1% (less than 1 in 100) chance it is a true penicillin allergy

1-2 points [Allergy remains on record](#) There is a 5% (1 in 20) chance it is a true penicillin allergy

[Patient would like to receive oral penicillin challenge if available in the future in secondary care?](#)  Yes  No

3+ points [Allergy remains on record](#) There is at least a 20% (1 in 5) chance it is a true penicillin allergy

### Section 2: Reported reaction to penicillin:

Mild GI symptoms (nausea, vomiting, mild abdominal pain, diarrhoea)?  Yes  No

Thrush or *C. difficile* bowel infection after taking penicillin?  Yes  No

Mild symptoms like headache, joint pain, change of taste in mouth?  Yes  No

Family history of penicillin allergy but without personal history of it?  Yes  No

Has taken and tolerated any penicillin following the initial reaction?  Yes  No

If answered 'yes' to any of the above, discuss removing penicillin allergy status with patient. If answered 'no' to ALL the above, only consider removing penicillin allergy if there is strong clinical justification.

### Eligible patient consents to remove penicillin allergy from active record

Yes - patient is comfortable to take penicillin in the future and remove allergy record  
 No - but would like to have oral Penicillin challenge in secondary care if available in the future  
 No - Clarify nature of reaction on records

Name of assessor:

Signature:

Date of assessment:

# Challenges & Reflections

- Misunderstanding of the risks associated with de-labelling
- Unless this is funded, scale of activity will remain small
- Need for education package with HEIW and evaluation post AWTTC publication to demystify risks

# Contact

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## Acknowledgement to:

Project mentor: Dr Laurence Gray

Key project members: Amie Bain, Laura Maynard, Meryl Davies & Steve Short

AWTTC scientists: Katherine Chaplin & Christine Collier