

## Penicillin Allergy Assessment in Primary Care (For Adult Patients)

*This guideline has been developed in order to provide a framework for primary care prescribers who may be considering addressing potentially inaccurate penicillin allergy labels in appropriate patients in their practice. It would be recommended to contact your local trust microbiology/infectious disease department to explore if they are addressing this in their Trust.*

### **Introduction**

A label of penicillin allergy is carried by 5.9% of the general population with an estimated 182,000 people in the North East and North Cumbria (NENC) affected<sup>1</sup>. Around 95% of patients are incorrect when tested<sup>2</sup>. A penicillin allergy label can be associated with increased morbidity, increased length of stay, greater healthcare costs, and increased rates of methicillin resistant *Staphylococcus aureus* (MRSA), *Clostridioides difficile* (*C difficile*), and vancomycin-resistant *Enterococcus* (VRE) infection. This may be due to use of alternate antibiotics to beta-lactams.

Despite this clear association with harm, penicillin allergy testing is a scarce resource in the NHS<sup>3</sup>. Testing is currently performed by allergists and immunologists working in specialist clinics and is consequently limited to select patient groups<sup>4</sup>. The provision of de-labelling at-scale is therefore only possible with the engagement of clinicians who are not trained in allergy or immunology.

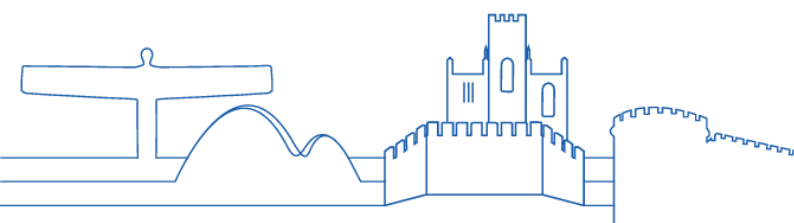
This guideline refers to the assessment of penicillin allergy without prior skin testing. In some patients, the allergy history may indicate that there is no increased risk of allergy compared with that of the baseline population risk. In this group, no allergy testing is required before removing the allergy label.

Clinical presentation of penicillin allergy is variable and dependent on the immunological mechanism. Type 1 hypersensitivity/ immediate IgE mediated reactions occur within 6h (typically <1h) after drug administration but can occur up to 4 days into a course (accelerated/immediate). These reactions have features ranging from life-threatening anaphylaxis to urticarial, angioedema, bronchospasm/wheezing and laryngeal oedema. Type 4 hypersensitivity/ non-immediate reactions (non-IgE) occur >1h to several days after administration and are generally cutaneous reactions.

This guideline is aimed at challenging 'low risk' penicillin allergies. These include:

- Childhood rashes where timing of rash onset is unknown and there were no severe features or hospitalisation.
- A delayed rash (>24h after starting antibiotics) with no other symptoms, either diffuse or localised rash, which occurred over 10 years ago.
- Unknown reactions which occurred over 10 years ago
- Non-specific reactions such as mild CNS effects (headache, confusion) or GI effects (diarrhoea, nausea, vomiting)

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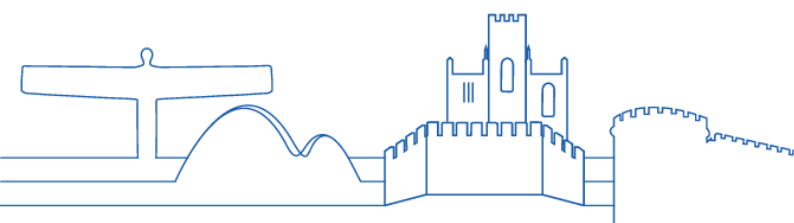


## **Penicillin Allergy Assessment Criteria**

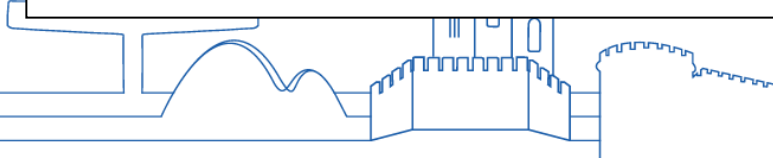
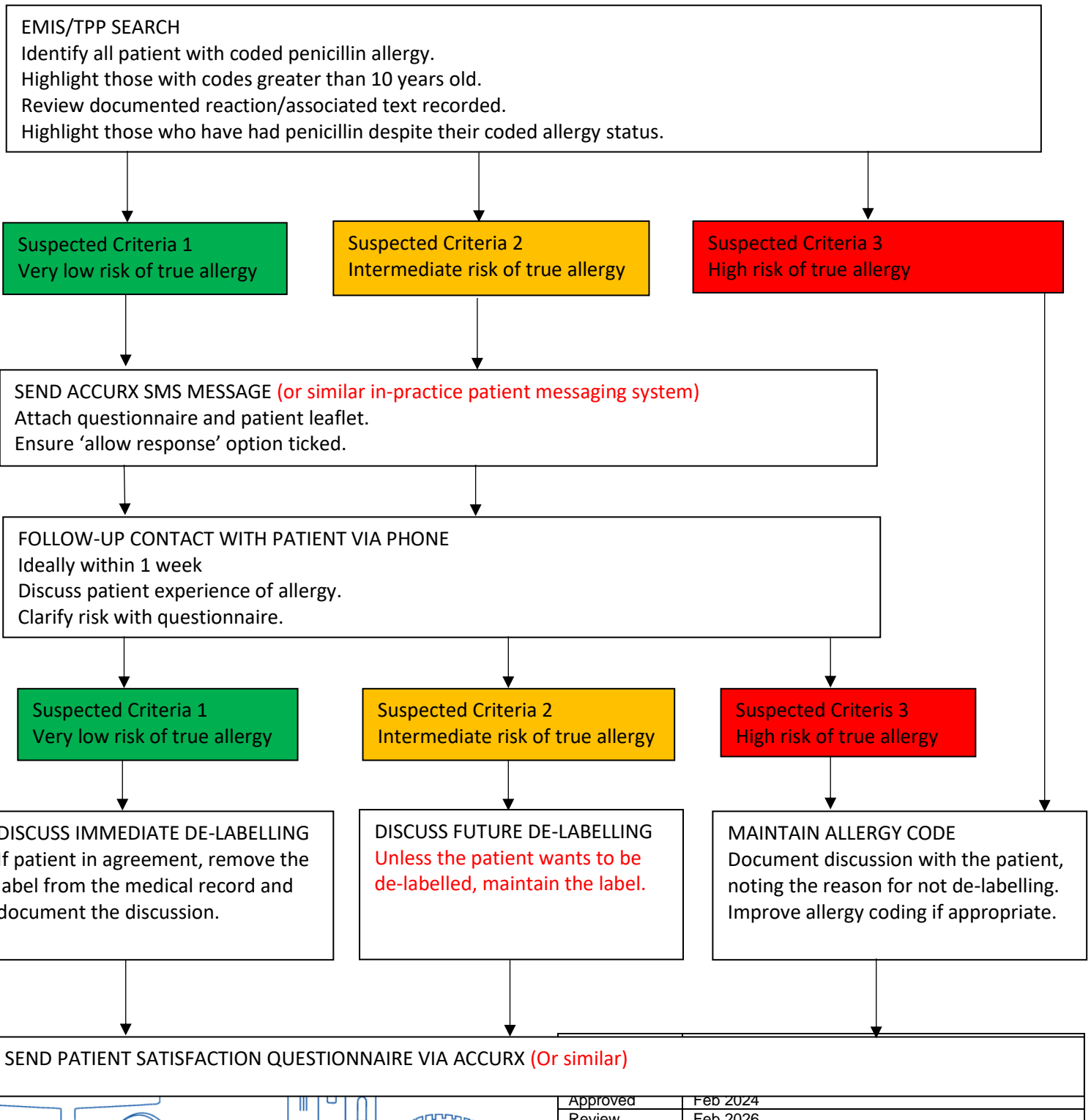
Patients can either be identified through completion of searches via electronic systems or during presentation for suspected infection. Patients should be assessed as per the penicillin allergy de-labelling flowchart below.

<p><b><u>Level 1</u></b> <b>Delabel without further testing</b></p> <p>Gastro-intestinal symptoms (nausea, vomiting, diarrhoea) Mild Neurological symptoms (e.g., headache, confusion, mood disorders) Mild Renal/Liver impairment (unless resulting in severe renal failure/impairment) Secondary infections (e.g., oromucosal candida, <i>C diff</i> colitis)</p>
<p><b><u>Level 2</u></b> <b>Potentially suitable for inpatient direct oral penicillin challenge (if service offer in local FT)</b></p> <p>Unknown Reaction &gt;10years ago (including unknown childhood reaction) Diffuse or localised rash with no other symptoms more than 1hour post dose &gt; 10years ago. Non-specific childhood rash</p>
<p><b><u>Level 3</u></b> <b>Do not delabel under protocol.</b></p> <p>Suspected Allergic Reaction occurred less than 10years ago. Collapse requiring resuscitation. Itchy Rash/Urticaria (Hives) with 1 hour of dose Blistering/peeling of skin Oral/genital ulceration New Wheeze Swelling of lips/tongue/eyes (angioedema) Severe Renal/liver impairment/failure (e.g., significantly deranged biochemistry or requiring dialysis/transplantation)</p>

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**Penicillin allergy de-labelling flowchart**



**Patient Questionnaire**

**PENICILLIN ALLERGY ASSESSMENT CRITERIA**

Have you ever been told that you have a penicillin allergy?	Y	N
<p>It is estimated that over 5 million people in the UK are incorrectly labelled as having a penicillin allergy. These people unnecessarily miss out on the best and safest treatments for common bacterial infections. These include chest, throat, sinus, inner ear and skin infections. They also have an increased risk of complex, prolonged hospital admissions and severe infections.</p> <p>By completing a simple allergy screening questionnaire, it is possible to identify people who are not truly allergic to penicillin. You can then discuss removing this label with your GP or Pharmacist.</p> <p>These patients will then be able to use penicillin based antibiotics to treat bacterial infections as appropriate and will avoid the significant risks associated with being truly penicillin allergic.</p>		

**TELL US ABOUT YOUR SUSPECTED ALLERGY**

Was this suspected allergy within the last 10 years?	Y (2 points)	N (0 points)
Did you experience breathlessness, wheezing, lip/tongue swelling or collapse?	Y (2 points)	N (0 points)
Did you experience a severe, blistering or peeling skin reaction?	Y (2 points)	N (0 points)
Did you require any treatment (e.g., antihistamines) for your reaction?	Y (1 point)	N (0 points)

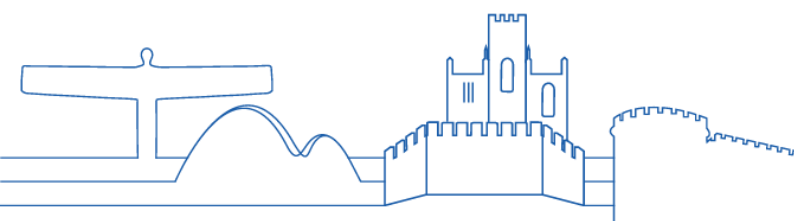
**IF YOU SCORED...**

0 points	There is <1% (less than 1 in 100) chance that you have a penicillin allergy
1-2 points	There is a 5% (1 in 20) chance that you have a penicillin allergy
3+ points	There is at least a 20% (1 in 5) chance that you have a penicillin allergy

**DID YOU EXPERIENCE ANY OF THESE NON-ALLERGIC SYMPTOMS?**

Did you experience nausea, vomiting, mild abdominal pain?	Y	N
Did you experience headache, mild confusion, changes in your mood?	Y	N
Did you get thrush or <i>C.difficile</i> bowel infection after taking penicillin?	Y	N

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These symptoms are common to all types of antibiotics and do **not** represent an allergy.

If you scored 0 points on the questionnaire, then please feel free to contact your GP practice to discuss this. Your GP or Pharmacist can help you to remove the 'penicillin allergy' label from your medical records if appropriate.

*Adapted from Trubiano, Jason A., et al<sup>5</sup>*

**APPENDIX 1**

**Patient Information Leaflet Penicillin allergy**

**BACKGROUND**

Antibiotics are used to treat infections caused by bacteria. Since their discovery over 70 years ago, antibiotics have revolutionised modern healthcare and enabled us to treat and cure infections that were previously untreatable. However, many bacteria are becoming resistant to antibiotics which means in the future we may not be able to successfully treat many of the infections we can now as the antibiotics will no longer work. This is an international problem, and you may have heard about this in the news or on social media.

We therefore need to use the antibiotics we have carefully and choose the right drug for patients to treat their suspected infections. Different antibiotics work for different infections depending on where the infection is and what type of bacteria, we think is causing the infection.

**WHAT IS A PENICILLIN?**

A penicillin is an important type of antibiotic that can be used to treat many common infections. Penicillin antibiotics are often the first choice antibiotic for common infections like pneumonia, skin infections and tonsillitis. They are widely used both in hospital and in the community and examples include Phenoxymethylpenicillin (Pen V), Amoxicillin, Flucloxacillin and Co-Amoxiclav (Augmentin),

**WHY HAVE I BEEN GIVEN THIS LEAFLET?**

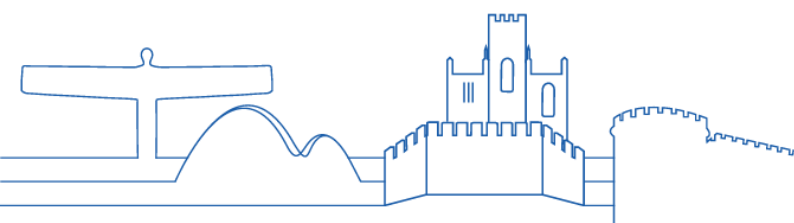
You have reported side effects or a possible allergy to penicillin. This means that you will not be given antibiotics which contain penicillin. However, we know that less than 1 in 1000 patients (less than 0.1% of patients) have a true allergy to penicillin. Sometimes patients are told they have an allergy when in fact they have simply experienced side effects to the antibiotic such as nausea, vomiting, diarrhoea, unpleasant taste or a mild rash. We also know that children were previously given antibiotics for common viral infections, many of which can give people a rash. This means that some patients were told they were allergic to antibiotics because of a rash when the rash was actually due to the condition that made them feel unwell and not the antibiotics.

**WHY IS THIS IMPORTANT?**

Penicillin antibiotics are very effective and are often used first to treat many infections. If we can't use penicillin then we have to use alternative antibiotics that are often less effective, have more side effects, and are often more expensive.

For most people an allergic reaction will be an unpleasant mild skin reaction or rash that develops slowly after several hours or days of taking the medicine. Sometimes a more severe reaction can occur called anaphylaxis. Anaphylaxis is extremely rare but can be life threatening.

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## I HAVE HAD A RECORDED PENICILLIN ALLERGY FOR A LONG TIME. WHY SHOULD THAT CHANGE NOW?

Penicillins are very effective treatments for many infections including skin and chest infections. They are also commonly used in patients having a surgical procedure. Being unable to take penicillins may put you at a disadvantage especially if you are admitted to hospital with a severe infection.

## WHAT ARE THE BENEFITS TO ME OF FINDING OUT WHETHER I AM ALLERGIC TO PENICILLIN ANTIBIOTICS?

Removing the penicillin allergy label from your record means you can be given penicillins when you really need them. It also means you will have more treatment options if you have an infection or require antibiotics before an operation.

## WHAT ARE THE RISKS OF BEING LABELLED PENICILLIN ALLERGIC?

Research shows that people with a documented penicillin allergy (true or not) have worse healthcare outcomes when compared to the general population. These include:

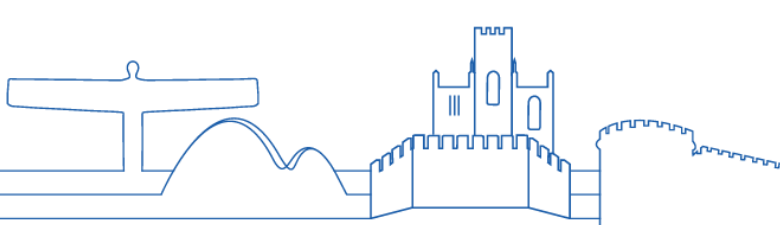
- Longer hospital stays.
- Higher chance of hospital readmission
- Increased risk of surgical wound infection
- Increased risk of severe infections such as *Clostridioides difficile* (*C.difficile*) and methicillin-resistant *Staphylococcus aureus* (MRSA)
- Increased risk of intensive care admission
- Increased risk of death

## WHAT CAN I DO ABOUT IT?

If you have been incorrectly labelled as having a penicillin allergy, then you are missing out on the best and safest treatments for common bacterial infections and are unnecessarily subject to the above risks.

We are in the process of contacting some patients whose medical records currently suggest that they have a penicillin allergy. By completing a simple allergy screening questionnaire, it is possible to identify patients who are not truly penicillin allergic and then remove this label.

If you currently consider yourself have a penicillin allergy but feel that this might not be accurate, then please contact you GP to discuss this.



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### **National resources to support penicillin allergy de-labelling**

2023 saw the very first Penicillin Allergy De-Labelling Awareness Day, on 28<sup>th</sup> September

A series of national resources were released to support prescribers.




[Penicillin Allergy and Delabelling - Antimicrobial Resistance Programme - FutureNHS Collaboration Platform](#)

### **North-East and North Cumbria ICB wide Penicillin Allergy Delabelling guideline for hospitals**


<https://ntag.nhs.uk/wp-content/uploads/2023/06/NENC-Penicillin-Allergy-Assessment-Oral-Challenge-and-De-labelling-Secondary-Care-June-2023.pdf>

### **Primary care PADL tools from Catalyst**

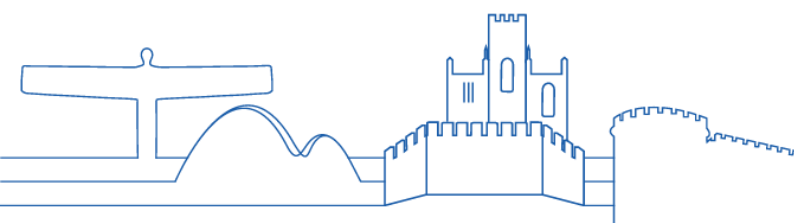
**Searches**

		
All pts penicillin allergy coded Auto R	Penicillin allergy coded more than 10y	System1 Search Breakdown Guide.doc

**Text message examples**


Text Message Examples.docx

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**Acknowledgement**

- CATALYST Penicillin Allergy De Labelling Pilot Project, North Tyneside CCG

**References**

1. West RM, Smith CJ, Pavitt SH, 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. J Antimicrob Chemo. 2019;74(7):2075-2082
2. BSACI guideline for the set-up of penicillin allergy de-labelling services by non-allergists working in a hospital setting. Clin Exp Allergy. 2022;52:1135–1141
3. Royal College of Physicians. Allergy: the Unmet Need. The Lavenham Press Ltd; 2003. URL: [www.bsaci.org/wp-content/uploads/2020/02/allergy\\_the\\_unmet\\_need.pdf](http://www.bsaci.org/wp-content/uploads/2020/02/allergy_the_unmet_need.pdf). Accessed 4/5/2022
4. National Institute for Health and Care Excellence Behaviour change: digital and mobile health interventions. 2020. Available at <https://www.nice.org.uk/guidance/ng183>. Accessed Feb 2023
5. Trubiano, Jason A., et al. "Development and validation of a penicillin allergy clinical decision rule." JAMA internal medicine 180.5 (2020): 745-752
6. Rachel A. Patterson; Holly A. Stankewicz. Penicillin Allergy. StatPearls (Internet). National Centre for Biotechnology Information. <https://www.ncbi.nlm.nih.gov/books/NBK459320/#:~:text=In%20patients%20who%20have%20previously,after%20the%20initial%20positive%20tes>
7. Brayson J, et al. CATALYST: challenging antibiotic allergy status. J Antimicrob Chemother. (2023) :1241-1244

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