



## Extended Research Article

# Direct oral penicillin challenge in secondary care with low-risk patients: the SPACE mixed-methods study with cost-effectiveness analysis

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## Plain language summary

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## Plain language summary

**M**any patients who experience minor side effects when taking penicillin are wrongly labelled as 'allergic', leading to huge numbers of people with incorrect penicillin allergy labels in hospitals. Patients with an allergy label receive different antibiotics which might be toxic and less effective. Allergy tests are not routinely available due to very few specialists in the National Health Service.

We developed a simple way to remove incorrect labels in patients at low risk of genuine allergy. This involves taking a careful history from the patient to decide if they are at low risk of having a genuine allergy to penicillin. Then, if suitable, they are offered a test dose or a challenge test (penicillin capsule to be swallowed without doing other allergy tests) in a hospital after taking prior informed consent. In this study, the test was performed by trained healthcare professionals with no specialist background in allergy. We included patients admitted in hospital wards and outpatients from surgery and cancer units in three hospitals.

We did 126 challenge tests and showed that almost all (97%) did not have an allergy. One patient developed stomach upset and three had mild rash. Very few patients in the wards were eligible to participate for medical reasons, and a greater percentage of outpatients were suitable.

We spoke to patients and healthcare professionals about this pathway. Professionals understood its importance but thought appropriate training, safety and resources were required. Patients were keen to find out if they were really allergic and felt safe undergoing the challenge test in hospital. The main reasons for not taking part were personal circumstances.

We showed that the penicillin challenge test can be delivered by non-allergy healthcare professionals, but a smaller percentage of patients were eligible to undergo this test than that shown in previous studies. We developed recommendations for wider roll-out of this pathway and gained good understanding of how it would work in the 'real world'. The cost saving appears small in the short term and more research is needed to understand the long-term benefits.

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