**Supplementary Information 4** – Follow up and statistical analyses

Patient follow-up after oral challenge

All patients who underwent an oral challenge were contacted 7-10 days following completion of the challenge to follow up their progress, either in-person or through telephone call if discharged prior. Patients who did not have any adverse reactions within 7 days of commencing the oral challenge were considered successfully de-labelled; this was documented in the EMR. The outcome of the challenge was communicated to the patient’s General Practitioner via letter, or in the hospital discharge summary if they remain an inpatient for the duration of the study period. The patients were informed that they can safely take penicillin in the future. Patients were asked the following questions during their follow up phone call: (i) Did you experience any reaction to the antibiotic? (ii) If so, what was the nature of the reaction? (iii) If you could have penicillin to be effectively treated for an infection in the future, would you be willing to take it?

Statistics

Descriptive statistics were used to describe the study cohort. Categorical outcome comparison between the intervention and control groups was conducted using Fisher’s exact test. Statistical significance was taken at the 0.05 level. Cost-based estimates were conducted using previously published cost estimates for inpatient penicillin allergy delabelling. In this cost-effectiveness analysis, the costs included those from a health service perspective (direct health service costs including test consumable costs, staffing costs for medical, nursing, pharmacy and administration), as well as patient perspective costs (car travel: cost of the car, time and distance travelled, opportunity cost, parking, and cost of follow-up consultations to discuss results). Statistical analysis was conducted in Python and R.