Optimizing Beta-Lactam Allergy Documentation: A Pharmacy-Driven, Patient-Centered Approach

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Abstract

Background: Beta-lactam antibiotics are among the most commonly prescribed antimicrobials, yet approximately 10% of the U.S. population reports a penicillin allergy. Evidence suggests that over 90% of these reported allergies are inaccurate, leading to suboptimal antibiotic selection, increased healthcare costs, and worse clinical outcomes.

Objective: This study aimed to evaluate and improve the accuracy of beta-lactam allergy documentation through a pharmacist-driven, patient-centered intervention at Sarah-Bush Lincoln Health Center.

Methods: This qualitative study was conducted over a five-week period and included hospitalized adult patients with a documented beta-lactam allergy. Pharmacists performed structured interviews to assess allergy history, including reaction type, severity, and timing. Based on patient responses, electronic health record allergy profiles were updated. Interventions included clarification of reactions, addition of missing reactions, removal of incorrect reactions, and reclassification of allergies as intolerances or contraindications.

Results: A total of 100 patients were interviewed, resulting in 217 pharmacist-led interventions. Ninety-four percent of patients required at least one intervention. The most common interventions were reaction clarifications (n=95) and addition of previously undocumented reactions (n=62). Seventeen allergies were reclassified as intolerances or contraindications, and eight reactions were removed. No intolerances were reclassified as allergies.

Conclusion: Pharmacist-led allergy clarification significantly improved the accuracy and completeness of beta-lactam allergy documentation. This intervention has important implications for antimicrobial stewardship, including increased use of first-line therapies, reduced reliance on broad-spectrum antibiotics, and improved patient safety. Implementation of standardized allergy clarification processes may enhance clinical decision-making and optimize antibiotic use in inpatient settings. Additionally, this study highlights the importance of interdisciplinary collaboration and the value of pharmacist involvement in direct patient care activities. Improved allergy documentation may facilitate more confident prescribing of beta-lactam antibiotics, thereby reducing unnecessary use of alternative agents associated with higher toxicity, increased resistance, and greater cost. These findings support the integration of structured allergy clarification processes into routine clinical workflows and reinforce the role of pharmacists as key contributors to antimicrobial stewardship initiatives.