

**Title:** Review of penicillin allergy documentation impacts on antimicrobial selection

**Purpose:**

At Saint Luke's Health System, documentation of patient allergies is often performed by nurses. Accurate allergy documentation is essential to the appropriate selection of empiric antimicrobial therapy. Documentation of allergies should include type, severity, time of reaction, and tolerability of medications in the same class. Insufficient documentation leads to inappropriate use of non-preferred antibiotics. Only 5% of beta-lactam allergies cause clinically significant allergic reactions.<sup>[1]</sup> This class of antibiotics is amongst the safest and most effective empiric antibiotics, whereas non-preferred antibiotic usage can increase the risk of side effects and may lead to antimicrobial resistance.<sup>[1]</sup> In previous studies, Saint Luke's Health System alerted pharmacists whenever a non-preferred antibiotic was ordered in an attempt to minimize their usage. In this present study, nurses were educated on appropriate allergy documentation to further reduce the use of non-preferred antibiotics. Herein, this study reviews the adequacy in allergy documentation in relationship to respective hospital units, assesses the impact of allergy documentation on antimicrobial selection and compares the data from both before and after direct nursing education.

**Methods:**

This is a retrospective review of patients who have a documented beta-lactam allergy at Saint Luke's Plaza Hospital and received an antibiotic from June 1<sup>st</sup> to July 31<sup>st</sup>, 2019. The documentation of the allergy, reaction type, and tolerability of medications in the same class were assessed for sufficiency. Previous inpatient administrations and outpatient prescriptions via electronic medical record were reviewed to determine if the patient had prior record of tolerating beta-lactams and were compared to the documentation on their profile. The antibiotics prescribed during the hospital course were examined to determine the impact the allergy documentation had on agent selection. Patients who were prescribed a beta-lactam antibiotic, a non-preferred antibiotic or both had their therapy assessed for appropriateness. Non-preferred antibiotics were defined as alternative antimicrobial agents that are associated with higher costs and adverse effects. This included aztreonam, fluoroquinolones, carbapenems, clindamycin, tigecycline, aminoglycosides, vancomycin, linezolid, and daptomycin. The use of a non-preferred agent was deemed appropriate if the infection required specific bacterial coverage, there was an inability to use a beta-lactam due to a documented true and severe allergy, the infection required escalation due to an inadequate response, or the infection involved a multi-drug resistant bacteria. The patients with beta-lactam allergies who received a beta-lactam antibiotic were evaluated for adverse reactions and escalation of care due to their therapy. Direct nursing education was provided during November 2019, and the post-education data will be assessed in the same manner.

**Results:**

Research in Progress

**Conclusion:**

Research in Progress

References:

1. Shenoy ES, Macy E, Rowe T, Blumenthal KG. Evaluation and Management of Penicillin Allergy. *Jama*. 2019;321(2):188. doi:10.1001/jama.2018.19283.