



Abstract (modified)

Background: To determine a true antibiotic allergy history, allergy services are often consulted as patient reported beta-lactam allergies poorly correlate with results from allergy testing. There is a lack of evidence regarding how often antibiotic allergy records are updated after an allergy service consult. The objective of this study was to evaluate the frequency of antibiotic allergies being correctly updated in the medical record after an allergy service consult.

Methods: Patients considered for study inclusion were ≥18 years old, had an inpatient or outpatient allergy service consult, were hospitalized at Northwestern Memorial Hospital between January 2009-Dec 2014, and had at least one beta-lactam allergy listed in the medical record. Patients with an outpatient allergy service consult were required to have the allergy consult prior to hospitalization. Patient demographic, allergy consult, and antibiotic use information were collected.

Results: A total of 552 patients were included in the study. Patients were predominantly female (n=324, 58.7%), Caucasian (n=353, 64%), with mean age 57.8 years (SD 17), median length of hospital stay 14 days (IQR 7-25), and median days to allergy service consult 5 (IQR 2-10). There were 88.8% of patients (n=489) with reported penicillin allergy, n=136, 24.7% with cephalosporin allergy, and n=28, 5.1% with reported allergy to carbapenems. A reaction was only documented in 65.3% of reported allergies with the most common reaction being rash/itching (n=200, 51.6%). The allergy service recommended changes in 61.3% (n=336) of cases. The allergy list was updated post allergy service consult for 67.7% (n=270) of patients. Allergy service recommendations were followed 94.5% of the time and antibiotics were changed post allergy consult in 84% of cases. The median length of antibiotic therapy was 16 days (IQR 7-28).

Conclusion: Approximately 30% of medical records were not updated after an allergy service consult recommended changes to the allergy record. These patients are at risk for receiving less efficient and more costly antibiotics. Future studies should focus on the development of a stewardship intervention post allergy consult.

Introduction

- Listing beta-lactam antibiotic allergy in the electronic medical record (EMR) reduces antibiotic options to treat infections, increases treatment costs, and has an impact on clinical outcomes
- Allergy Service consults can be obtained to validate an antibiotic allergy and determine alternative antibiotic options in the setting of documented allergy
- There is a lack of evidence regarding the frequency with which antibiotic allergy records are updated based on Allergy Service consult findings and the compliance with Allergy Service recommendations

Objective

- To evaluate the frequency of antibiotic allergies being correctly updated in the medical record after an Allergy Service consult

Methods

Study Design

- Retrospective, cohort study to evaluate the accuracy of beta-lactam antibiotic allergies listed in the EMR after Allergy Service consult at an academic medical center

Patient Population

- Patients with a documented beta-lactam allergy in the EMR and hospitalized at Northwestern Memorial Hospital or Prentice Women's Hospital between 01/2009 and 12/2014
 - Patients ≥18 years of age
 - Patients were required to have had at least one Allergy Service inpatient or outpatient consult
 - Outpatient consult needed to be completed prior to hospitalization

Statistical Analysis

- Primary outcome: Percentage of allergy records that were updated after an Allergy Service consult
- Descriptive statistics were calculated using Intercooled Stata, version 13 (Statacorp, College Station, TX)

Results

Table 1. Patient Demographics

	N=552
Age (mean, SD)	57.8 (16.7)
Gender, male (n,%)	228 (41.3)
Race	
Caucasian	353 (64)
African American	98 (17.8)
Asian	20 (3.6)
Other	81 (14.7)
Weight, kg (median, IQR)	79.5 (65-96)
Consult source, Cerner (n,%)	500 (90.6)
Allergies listed (n,%)	
Penicillin	489 (88.8)
Cephalosporin	136 (24.7)
Carbapenem	28 (5.1)
Other antibiotic allergies listed medical record (n,%)	264 (47.8)
Allergy reaction documented (n,%)	359 (65.3)
Allergy reaction severity (n,%), n=388	
Anaphylaxis	46 (11.9)
Hives	82 (21.1)
Rash/itching	200 (51.6)
Adverse Drug Reaction	19 (4.9)
Other	41 (10.6)

Table 2. Patient Outcomes

	N=552
Length of stay, days (median, IQR)	14 (7-25)
ICU Transfer (n,%)	205 (37.3)
ICU LOS, days (median, IQR), n=205	7 (3-14.5)

Results (continued)

Table 3. Allergy Consult and Antibiotic Outcomes

	N=552
Days to allergy consult from admission (median, IQR)	5 (2-10)
Allergy Service recommended changes (n,%)	336 (61.3)
Allergy list updated with provider information (n,%), n=458	232 (50.7)
Allergy Service recommendations followed (n,%)	517 (94.5)
Allergy determination method (n,%)	
History	162 (29.4)
Skin testing	389 (70.6)
Graded challenge (n,%)	367 (66.7)
Graded challenge successful (n,%), n=367	363 (99.2)
Desensitization (n,%)	17 (3.1)
Desensitization successful (n,%), n=17	17 (100)

Table 4. Infectious Diseases Consult Outcomes

	N=552
ID consult (n,%)	400 (73.1)
ID recommendations followed (n,%), n=400	396 (99.3)
Antibiotic length of therapy, days (median, IQR), n=140	16 (7-28)

Figure 1. Allergy List Updated after Allergy Consult

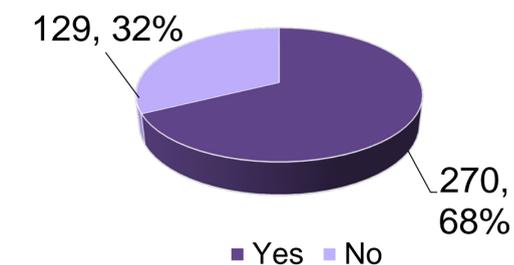
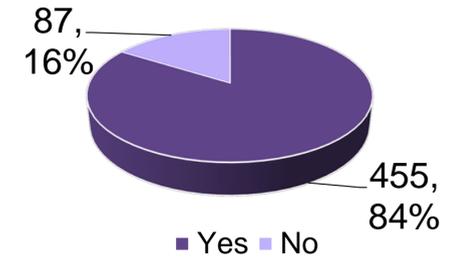


Figure 2. Antibiotics Changed after Allergy Consult



Conclusions

- Allergy Service recommended changes to allergy records in about 60% of cases
 - About 30% of these were not appropriately updated post allergy consult
- The majority of patient reported allergies were confirmed with skin testing
- Most patients had a concomitant Infectious Diseases consult
 - This may have cost-savings and antimicrobial stewardship implications
- Opportunities exist in identifying the gaps in de-labeling beta-lactam allergic patients