Conclusion. The success in de-labeling after formal evaluation is well established. Developing working relationships with allergists and encouraging providers to recognize often overlooked opportunities to refer to existing or newly established clinics is easily adopted by ASTs. In conjunction with screening, targeted education and referral to PCN-DE as a part of routine stewardship workflow has practical and immediate benefits.

Disclosures. **All authors:** No reported disclosures.

998. Challenging Penicillin Allergies: Pharmacist led program in a community hospital

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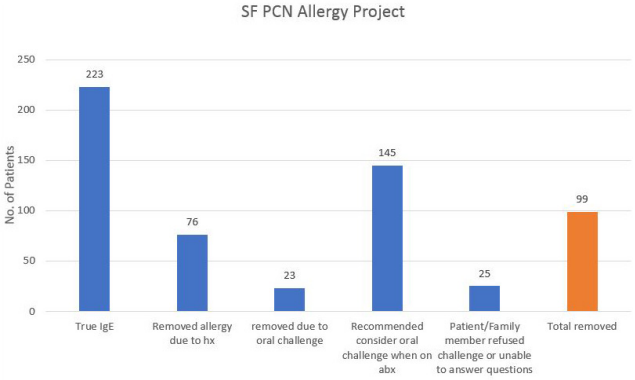
Background. Penicillin (PCN) allergy has been approximated to be reported in 10% of the United States population. Studies utilizing PCN skin testing have demonstrated that less than 1% of the population have a true PCN allergy. With increasing data on the negative consequences associated with a PCN allergy diagnosis, correctly identifying these patients is imperative. PCN skin testing has resulted in high rates of penicillin de-labeling; however, there are limited data evaluating the impact of a pharmacist-led PCN allergy evaluation with removal through utilization of oral challenges. The aim of this study was to utilize pharmacists to correctly identify those who are not penicillin-allergic to help decrease unnecessary use of broad-spectrum antibiotics and to optimize therapy.

Methods. This is a single-center, prospective review looking at a 10-month period of a pharmacist-led de-labeling project of patients with a PCN allergy. The electronic medical record system and decision support software were used to identify eligible patients. Adults ≥18 years of age with a PCN allergy were included. During the evaluation, pharmacists utilized a series of standardized questions which was reviewed with the infectious disease physician to classify the patient's allergy. Based on classification a protocol was followed that either led to the patient retaining their allergy, or removal. The primary objective is to evaluate the rate of removal of penicillin allergies. Secondary objectives reviewed removal rate of patients on active antibiotics, and evaluate how many were switched to β-lactam.

Results. A total of 492 patients with PCN allergies were interviewed by a pharmacist. Pharmacist de-labeled 99/492 (20%) PCN allergies. Of those patients, 23% were removed through oral challenge and 76% through patient history. There were 175 patients on active antibiotics and 52/175 (30%) had their allergies removed. Finally, 36/52 (69%) were switched to a β-lactam.

Conclusion. A pharmacist-led penicillin allergy de-labeling project is beneficial in reducing PCN allergies when skin testing is unavailable in community hospitals. As seen about 1 in 5 patients were able to remove their allergy through allergy evaluation or oral challenge. Furthermore, pharmacist evaluation of the allergy not only helped remove the allergy but also resulted in the most appropriate antibiotic.



Disclosures. **All authors:** No reported disclosures.

999. Examining the Impact of a Penicillin Allergy Skin Testing Brochure on Inpatient Perceptions: a Pre-Post Intervention Study

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Background. Despite the negative implications associated with a penicillin (PCN) allergy label, less than 0.1% of ~25 million subjects with PCN allergy undergo a PCN skin testing (PST). There is a lack of data assessing patient knowledge and attitude about PCN allergy and PST. The purpose of this study was to evaluate the impact of an educational brochure on knowledge and perception of PST in adult inpatients with a PCN allergy label.

Methods. This was a pre-post intervention study conducted at a 528-bed community teaching hospital between June 2016 and March 2019. An electronic medical record was used to identify adult inpatients with an active PCN allergy. Participants completed a pre-brochure survey to assess demographic characteristics and baseline knowledge of PCN allergy and PST. Individuals then read an educational brochure, returned it to study personnel and were provided a post-brochure survey to complete. The primary and secondary outcomes of knowledge and perception were measured based on the level of agreement with statements about PCN allergies and PST using a 5-point Likert scale. McNemar's test was used to compare responses for those who agreed vs. did not agree to knowledge statements.

Results. Among 125 patients approached, 101 completed the survey (80.8%). Patients were predominantly female (66.3%), >65 years of age (42.6%), Caucasian (78.2%) and completed high school or beyond (81.2%). The minority of patients (40.6%) previously heard about PST while 25.7% agreed they had previous discussions about PST with a healthcare provider. Only 24.8% agreed that people can outgrow a PCN allergy at baseline; however, after reading the brochure, this percent tripled (77.2%) ($P < 0.01$). Among 56 participants who disagreed that PST would be helpful for them at baseline, 30 subsequently agreed with this statement on the post-brochure survey ($P < 0.001$). Post-brochure, 86.1% indicated they felt better informed about PST. Despite this, 34.7% indicated they would be scared to use PCN again if future PST results were negative.

Conclusion. An educational brochure improved general knowledge of PCN allergy and PST, including subject report of feeling more informed. Although the brochure successfully educated patients, gaps remain regarding how individuals will personally apply this new information.

Disclosures. **All authors:** No reported disclosures.

1000. The Impact of Pharmacy Students Performing Penicillin Allergy Reconciliation in a Community Health System

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Background. Antimicrobial stewardship programs (ASP) play an important role in the assessment of patients with a reported history of penicillin allergy. Full-time pharmacists performing antimicrobial stewardship face many time barriers and limited resources to interviewing and investigating self-reported allergies. Pharmacy students on Advanced Pharmacy Practice Experience (APPE) rotations during their fourth year can potentially play an important role in this evaluation if properly trained, but data are limited. This study evaluated APPE student interventions on hospital inpatients self-reporting a penicillin allergy.

Methods. This quasi-experimental study assessed patients with a self-reported penicillin allergy who were interviewed by APPE students from October 2018 through March 2019. Students on a 5-week infectious diseases rotation were trained in allergy assessment and interview skills by their preceptor and given a daily list of all inpatients with a self-reported penicillin allergy. After reviewing patients with the preceptor, the electronic health record was updated with specifics of the allergy, including the range, reaction, and any β-lactams tolerated since. Interventions included penicillin re-challenge, graded challenge, penicillin skin testing, desensitization, or removal or the allergy. The primary outcome was interventions attributed to APPE student patient interviews.

Results. A total of 12 APPE students participated in the study. Reported reactions ranged from mild allergies (itching, rash) or adverse reactions (nausea, vomiting) to intermediate or severe allergies (hives, anaphylaxis). For the primary outcome there were 162 interventions performed, with 154 verbal, 2 re-challenges, and 6 skin tests. For the verbal interventions, 95 had their allergy updated, 34 removed, and 33 confirmed. None of the 8 patients who were skin tested or re-challenged had a subsequent reaction.

Conclusion. Pharmacy students can expand ASP allergy reconciliation services for patients with penicillin allergies in settings with limited resources. After proper training, students were effective in multiple aspects of allergy reconciliation with a significant number able to have their penicillin allergy removed.

Disclosures. **All authors:** No reported disclosures.

1001. Feasibility and Outcomes of a Pre-Transplant Antibiotic Allergy Evaluation Program for Allogeneic Hematopoietic Cell Transplant (HCT) Candidates

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Background. Antibiotic allergies impact the management of hematopoietic cell transplant (HCT) patients who are often prescribed antibiotics for infection prophylaxis and treatment. We evaluated the feasibility and outcomes of an antibiotic allergy evaluation program prior to allogeneic HCT.

Methods. In August 2017, we implemented a program to expedite allergy clinic referrals for adult allogeneic HCT candidates who reported an antibiotic allergy at their initial pre-transplant evaluation visit (PTEV). Allergy labels and clinical data including outcomes of allergy evaluation were prospectively collected for patients with PTEVs between 8/10/17 and November 15/18. The use of selected antibiotics was collected in the 100 days following HCT among patients with a reported β-lactam allergy (BLA). Choice of prophylactic agent for *Pneumocystis jiroveci* among patients with reported sulfa allergies was assessed among HCT recipients after engraftment.

Results. Of 276 allogeneic HCT candidates, 109 (39.5%) reported >= 1 antibiotic allergy (Table 1). Of the 109, 69 (63%) were referred for allergy evaluation; 83% (57/69) of those referred were evaluated at a median of 14 days after PTEV, and a median of 18 days before transplant. Among evaluated patients, 45 (79%) had >= 1 antibiotic allergy de-labeled including 74% (28/38) of those with BLA (Figure 1). Of the 10 patients whose BLAs could not be delabeled, 1 had a possible immediate IgE-mediated reaction, 5 had a delayed type IV hypersensitivity, and 4 had other reactions or required additional testing. Post-transplant antibiotic use among evaluated vs. nonevaluated patients reporting BLA is shown in Figure 2. Among 31 patients with reported sulfa allergies who underwent HCT, those who were evaluated received TMP-SMX rather than alternative prophylaxis more often (48%; 11/23) than those who were not evaluated (25%; 2/8). 10 (43%) of 23 evaluated patients were delabeled; 7 of 10 delabeled patients received TMP-SMX.

Conclusion. Antibiotic allergies are frequently reported among HCT candidates. Pre-transplant antibiotic allergy evaluation was feasible, led to de-labeling of the majority of reported allergies, and may alter antibiotic prescribing and increase the use of preferred agents following transplant.

Table 1. Reported Antibiotic Allergies Among Allogeneic HCT Candidates with Pre-Transplant Evaluation Visits from 8/10/17 to 11/15/18[1]

Pre-Transplant Reported Allergy Summary	Beta Lactam	Sulfa	Quinolones	Vancomycin	Other[2]
Number of patients with at least one allergy[3], n (%)	60 (22%)	35 (13%)	23 (8%)	11 (4%)	22 (8%)
Number of allergies per patient[3], n(%)					
1	53 (19%)	35 (13%)	22 (8%)	11 (4%)	16 (6%)
>1	7 (3%)	0 (0%)	1 (0%)	0 (0%)	6 (2%)
Total number of allergies, n	69	35	24	11	29
Reaction reported[4]					
Rash, benign/unknown rash	31 (45%)	15 (43%)	7 (29%)	0 (0%)	7 (24%)
Rash, severe cutaneous adverse drug reaction	1 (1%)	1 (3%)	0 (0%)	0 (0%)	0 (0%)
Itching/pruritis without rash	3 (4%)	2 (6%)	1 (4%)	0 (0%)	0 (0%)
Possible IgE-mediated, hives and/or angioedema	16 (23%)	6 (17%)	0 (0%)	1 (9%)	5 (17%)
Possible IgE-mediated, possible anaphylaxis	4 (6%)	3 (9%)	1 (4%)	0 (0%)	1 (3%)
Pseudo-allergic[5]	0 (0%)	0 (0%)	0 (0%)	9 (82%)	0 (0%)
Other adverse/intolerance/idiosyncratic reactions	14 (20%)	8 (23%)	15 (63%)	1 (9%)	16 (55%)

[1]Among 276 allogeneic transplant candidates. Not all HCT candidates underwent transplant accounting for slight differences in numbers when reporting antibiotic use outcomes for HCT recipients in the results section.

[2]Reported allergies include azithromycin (n=3 patients), clindamycin (n=2), erythromycin (n=3), nitrofurantoin (n=1), tetracycline class (n=1), dapsone (n=2), metronidazole (n=1), rifampin (n=1), aztreonam (n=1), doxycycline (n=1), azithromycin and erythromycin (n=1), clarithromycin and erythromycin (n=2), clarithromycin and clindamycin (n=1), metronidazole and nitrofurantoin (n=1), clindamycin and erythromycin and nitrofurantoin (n=1)

[3]Denominator is 276 allogeneic HCT candidates. 36 patients reported more than one class of allergy and therefore appear in multiple columns.

[4]Among patients with at least one antibiotic allergy reported. Percentage computed out of all allergies reported in class.

[5]All reported reactions were Red Man Syndrome associated with vancomycin use

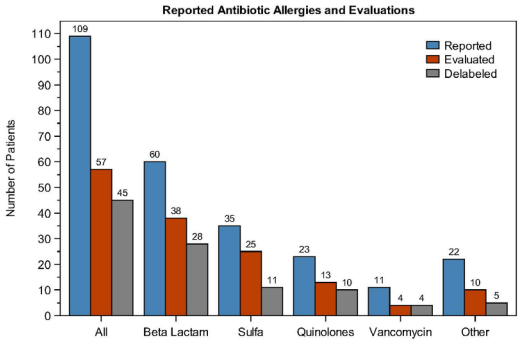

Figure 1. Number of allogeneic transplant candidates with at least one antibiotic allergy reported, at least one antibiotic allergy evaluated, and at least one antibiotic allergy de-labeled among 276 transplant candidates. Numbers atop the bars show the number of patients in each category.

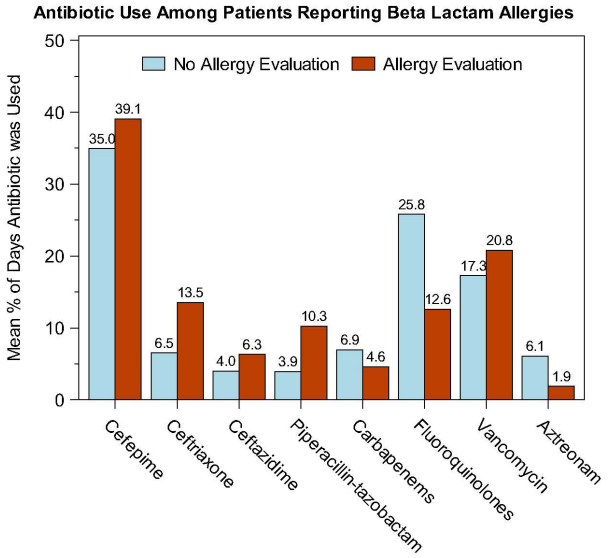

Figure 2. Mean percentage of total antibiotic exposure (number of days at least one antibiotic was administered excluding prophylaxis) that select antibiotics were used in the 100 days following allogeneic HCT for 43 patients with a reported beta lactam allergy and at least one day of antibiotic use in days 0-100. Mean values are shown atop the bars. Red bars represent 12 patients who received an allergy evaluation and blue bars represent 31 patients who did not receive an allergy evaluation. For fluoroquinolones, data represent the post-engraftment time period only and include 9 patients not evaluated and 23 patients evaluated.

Disclosures. **All authors:** No reported disclosures.

1002. Utilization of Alternative B-lactams in Patients with Penicillin Hypersensitivity

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Background. The increased utilization of alternative agents due to recorded β-lactam allergies, such as aztreonam, fluoroquinolones, and vancomycin is leading to potentially worse clinical outcomes as well as an increase in multi-drug-resistant-organisms. We aim to determine whether β-lactam allergy evaluation conducted by a pharmacist reduces the utilization of aztreonam in patients reporting a penicillin allergy.

Methods. This single-center, retrospective study was conducted at Advocate Christ Medical Center in patients ≥18 years of age with a documented penicillin allergy initiated on aztreonam upon admission from September 1, 2017 to August 31, 2018. A pharmacist driven β-lactam allergy history evaluation protocol was initiated on March 1, 2018 to identify patients who qualified for an alternative β-lactam, rather than aztreonam. Once identified, recommendations regarding these patients was discussed with the physician. The pre-intervention group was compared with patients initiated on aztreonam post-implementation of the pharmacist driven intervention.

Results. A total of 121 patients were included; 70 in the pre-intervention group, 51 in the post-intervention group. Post-intervention, significantly more patients had appropriate β-lactam allergy history documentation in the electronic medical record (38.6% vs. 60.8%; $P = 0.02$). After implementation of the pharmacist driven protocol, days on aztreonam per 1000 patient-days was significantly lower in the