

THE IMPACT OF IMPLEMENTING A β - LACTAM ALLERGY GUIDELINE AT A LARGE ACADEMIC MEDICAL CENTER

Michael Beshir, PharmD

PGY2 Specialty Resident in Drug Information

Kaiser Permanente Drug Intelligence and Strategy

CONFLICTS OF INTEREST

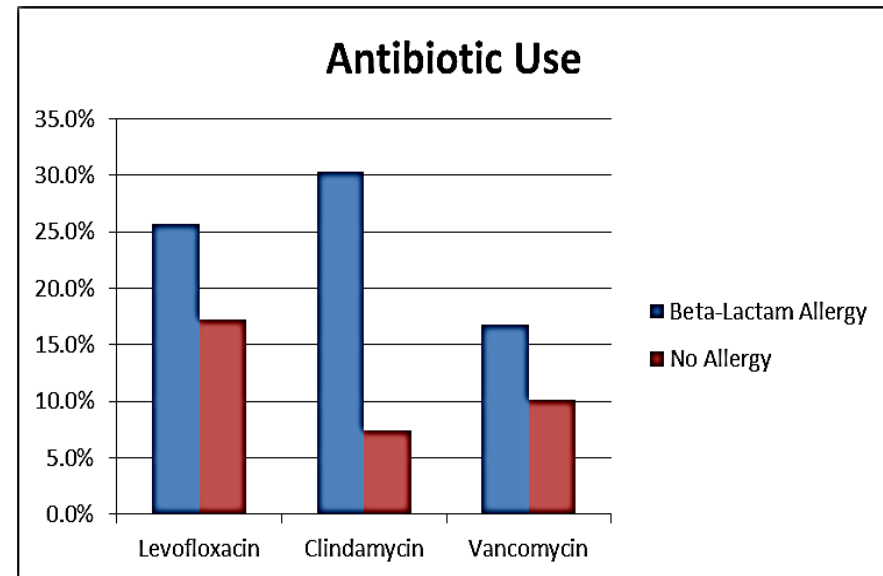
The speaker and authors of this study have no actual or potential conflicts of interest

INTRODUCTION

- RUMC Retrospective Study

Use of **levofloxacin, clindamycin and vancomycin** was significantly greater in patients with reported β -lactam allergies

Antibiotic	RR	95% CI	<i>p</i>
Levofloxacin	1.6	1.53-1.68	<0.0001
Clindamycin	3.81	3.67-3.96	<0.0001
Vancomycin	2.03	1.93-2.14	<0.0001



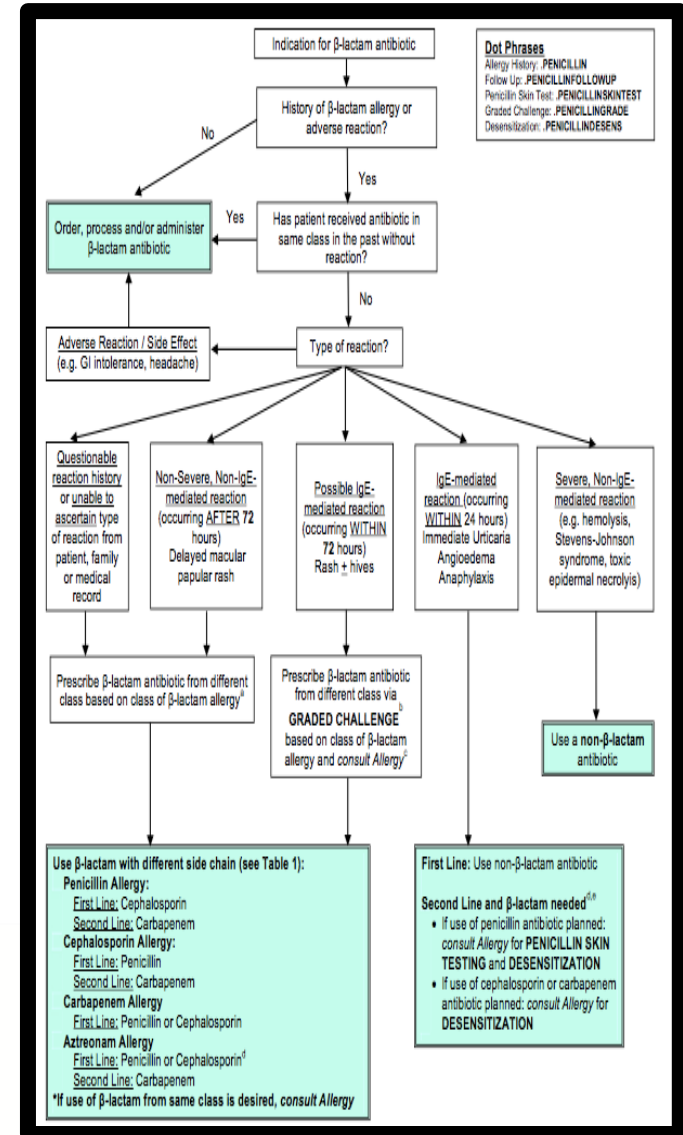
1. Necessity for β -Lactam Allergy Guidelines at a Large Academic Medical Center. Tristan O'Driscoll, PharmD, MPH^{a,b}, Amy P. Hanson, PharmD^b, John C. Segreti, MD^b, Mary C. Tobin, MD^b, Sheila K. Wang, PharmD^{a,b}#

RUMC GUIDELINE

β-Lactam Allergy Guideline

β-lactam Side Chain Table

		Beta-Lactams with Similar Side Chains																					
		Penicillin G, V	Amoxicillin	Ampicillin	Aztreonam	Pip/Taz (Zosyn)	Cefazolin	Cefadroxil	Cefaclor	Cefprozil	Cefuroxime	Cefixime	Ceftriaxone	Cefepime	Ceftazidime	Ceftiofur	Cefotaxime	Cefotetan	Cefoperazone	Cefepime	Ceftazidime	Ceftiofur	Meropenem
	Penicillin G, V																						
	Amoxicillin																						
	Ampicillin																						
	Aztreonam																						
	Pip/Taz (Zosyn)																						
1*	Cefazolin																						
1*	Cefadroxil																						
1*	Cefaclor																						
2*	Cefprozil																						
2*	Cefuroxime																						
3*	Cefixime																						
3*	Ceftriaxone																						
3*	Cefepime																						
3*	Ceftazidime																						
3*	Ceftiofur																						
4*	Cefotaxime																						
4*	Cefoperazone																						
5*	Ceftazidime																						
5*	Ceftiofur																						
5*	Meropenem																						

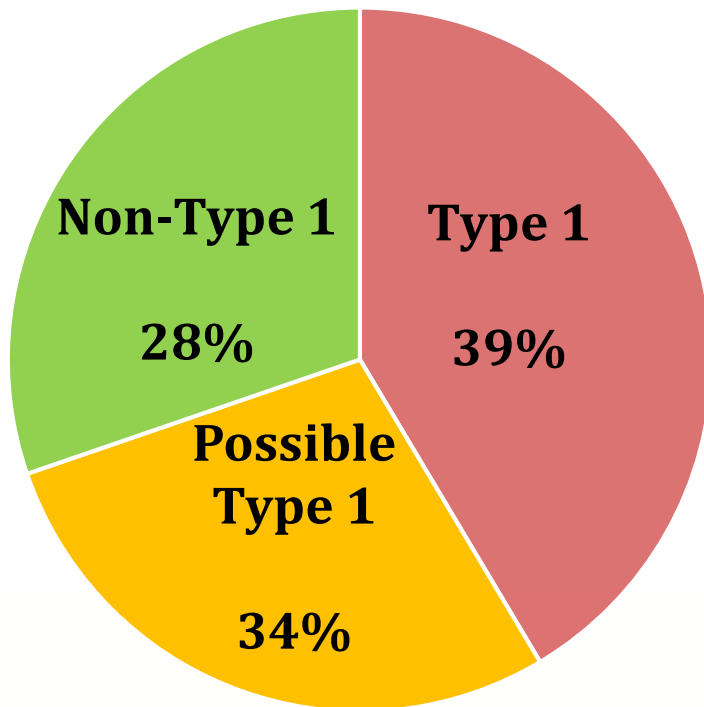


METHODS

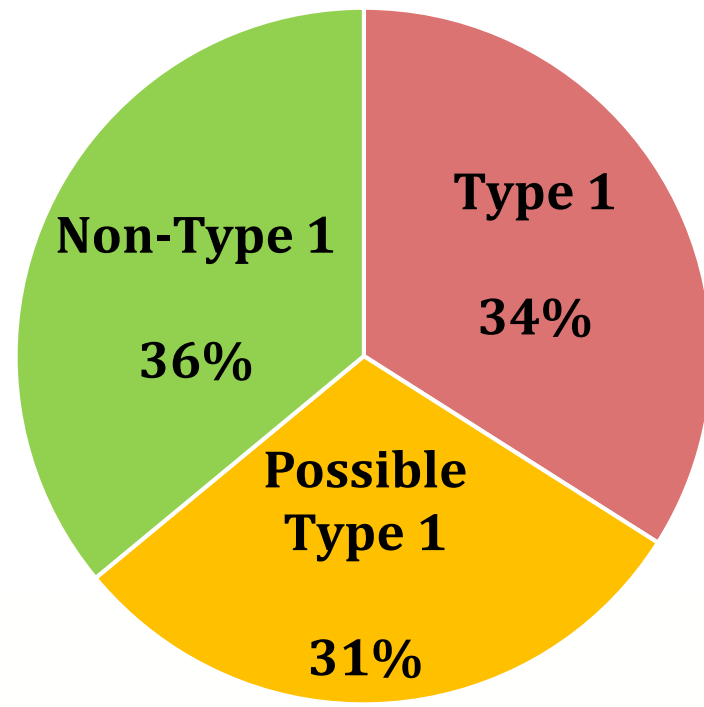
- **Study Design:** This single-center, quasi-experimental study, was conducted at RUMC, a 664-beds tertiary care academic hospital located in Chicago, IL.
 - Pre-guideline period: June 1st to December 31st, 2014
 - Post-guideline implementation phase: June 1st to December 31st, 2015
 - Guideline implemented on January 1st, 2015
- **Study Population:** Inclusion criteria were patients age ≥ 18 years, documented allergy, received 1 dose of antibiotic in the emergency department or during inpatient admission.
- **Data Collection:** Chart review via EPIC

BASELINE CHARACTERISTICS

Pre-guideline
Jun - Dec 2014
N=200

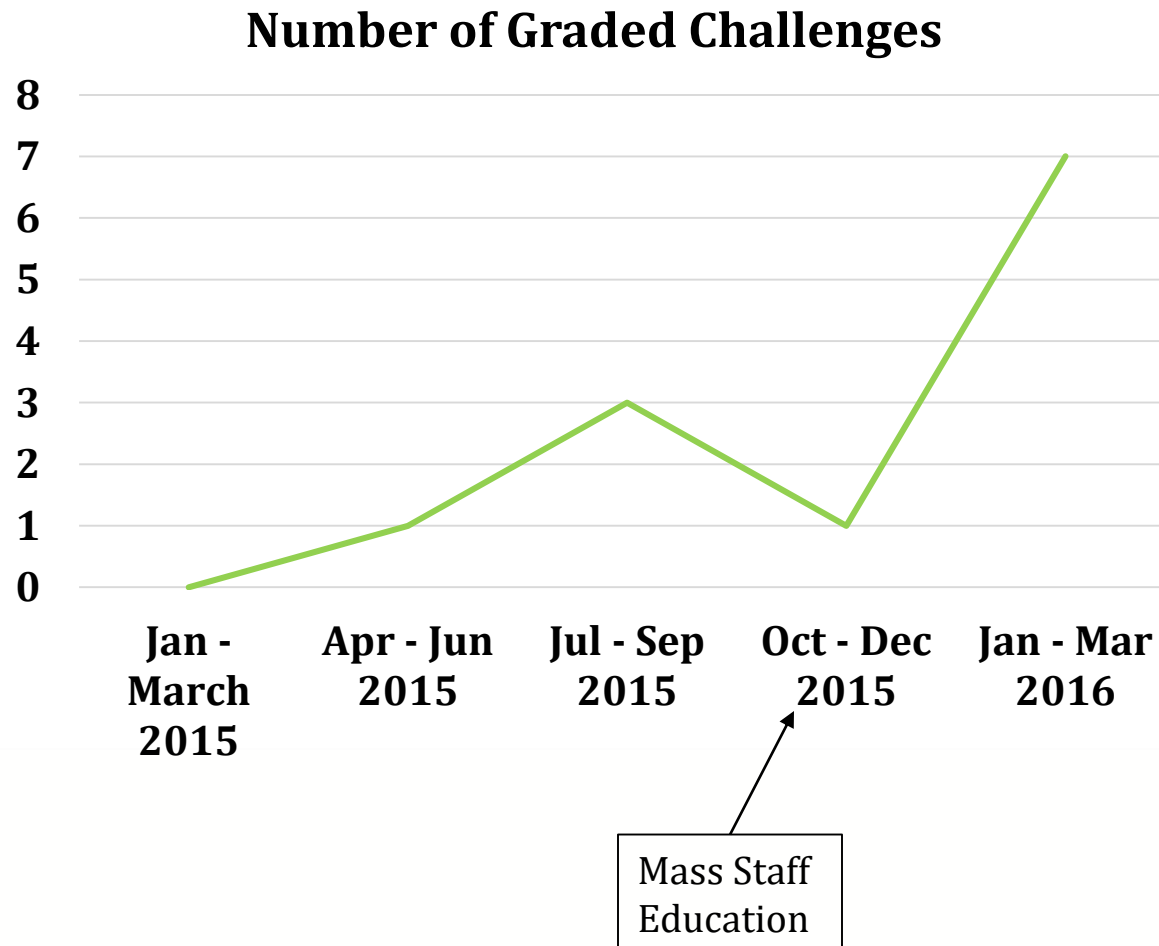


Post-guideline
Jun - Dec 2015
N=200



RESULTS

- Primary Outcome—Graded Challenge Attempts



RESULTS

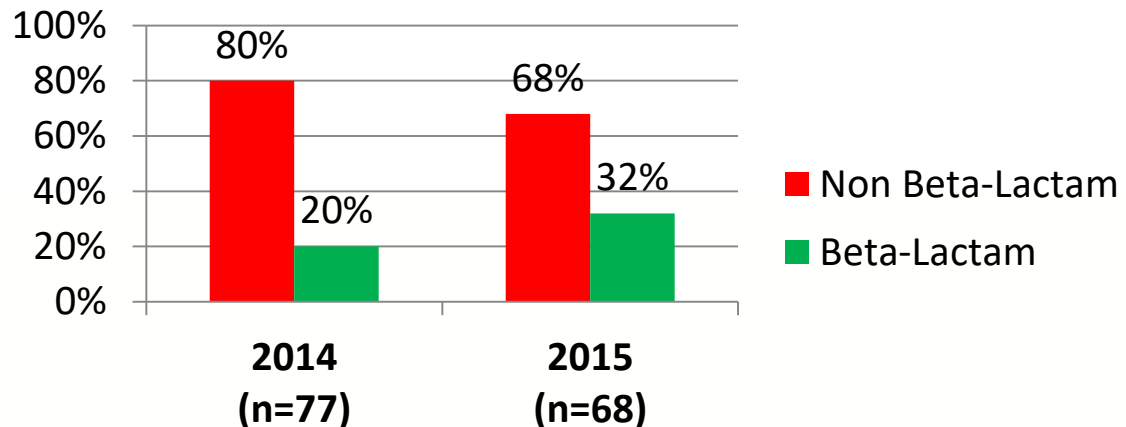
- Primary Outcome
 - 12 Graded Challenges
 - 7 of 12 → Jan – March 2016
 - 6 of last 7 *without* A&I consult
 - Allergy documentation updated to allow future use of tolerated agent

RESULTS

- Secondary Endpoints
 - Use of **broad-spectrum** antibiotics

Outcome <i>N (%)</i>	Jun - Dec 2014 (N=200)	Jun - Dec 2015 (N=200)	<i>P</i>
Composite Use of Broad-Spectrum Use	198 (99)	187 (94)	0.58
• Vancomycin	79 (40)	53 (27)	< 0.05
• Levofloxacin	81 (41)	77 (39)	0.75
• Clindamycin	101 (51)	110 (55)	0.53
• Aztreonam	12 (6)	4 (5)	< 0.05

- β -Lactam Use



CONCLUSION

- Implementation of a β -Lactam allergy guideline at a Large Academic Medical Center
 - Complex, multifaceted process
 - Requires
 - Strong collaboration
 - Education
 - Ongoing process improvement

5-YEAR OBSERVATION

- Update: 5-year observation by S.K Wang, et al reported a **76% reduction in aztreonam use from 2012 to 2017**, driven largely by increased compliance to the institutional β -lactam Allergy Guideline.
- Additionally, infectious diseases consults in patients with β -lactam allergies decreased from 171 in 2012 to 30 in 2017, an 82% reduction ($p < 0.0001$).
- This suggests that providers are becoming increasingly aware of the guideline and are more comfortable in independently treating patients with reported β -lactam allergies.