



Impact of Pharmacy-Led Evaluation of Empirical Antibiotic Prescribing in Antibiotic Allergic Patients

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Disclosure

The speaker has no actual or potential conflict of interest in relation to this presentation

Objective

Describe the impact of pharmacist led allergy clarification on alternative antibiotic prescribing

Alternative Antibiotics

Aztreonam

Clindamycin

Ertapenem

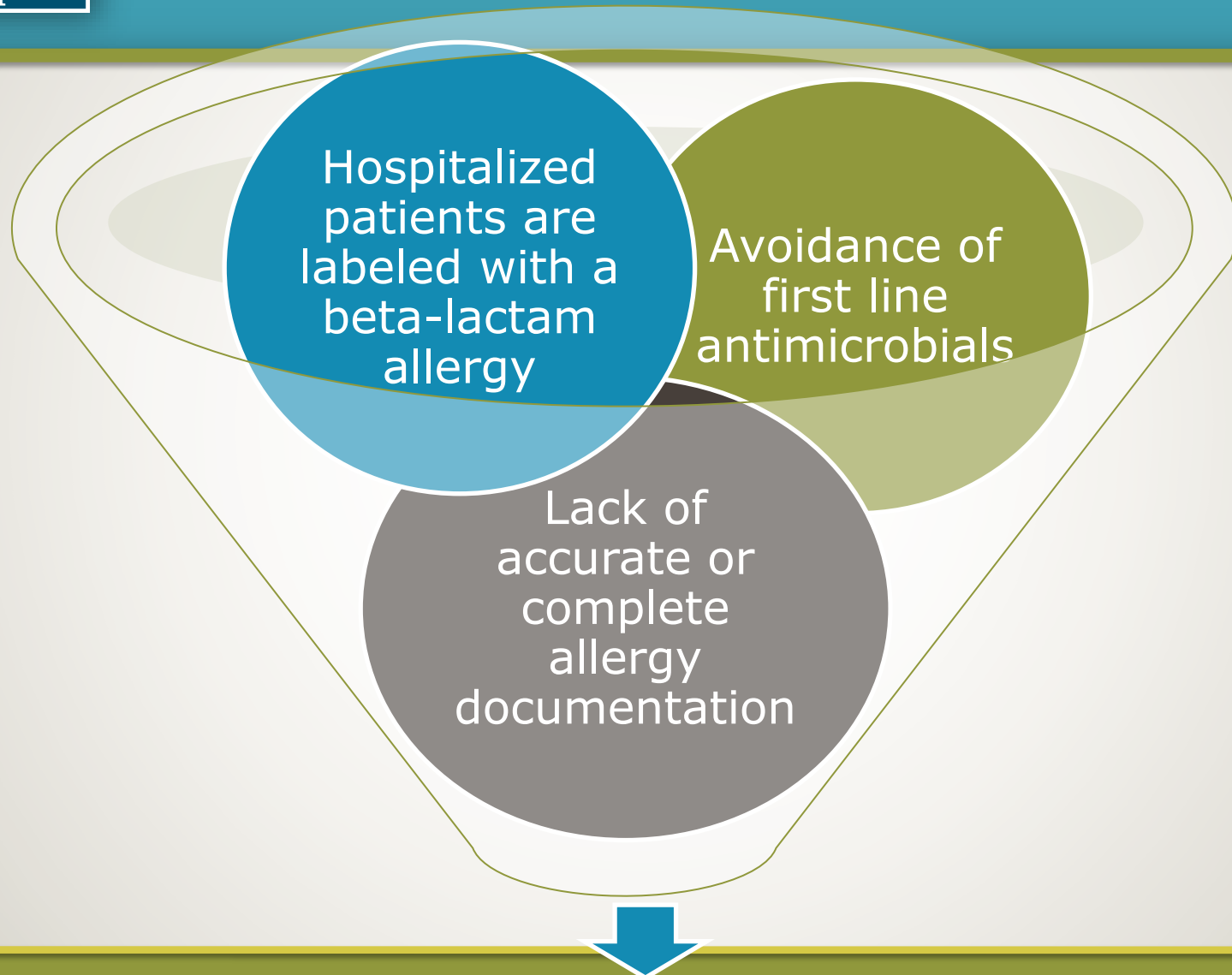
Levofloxacin

Meropenem

Vancomycin

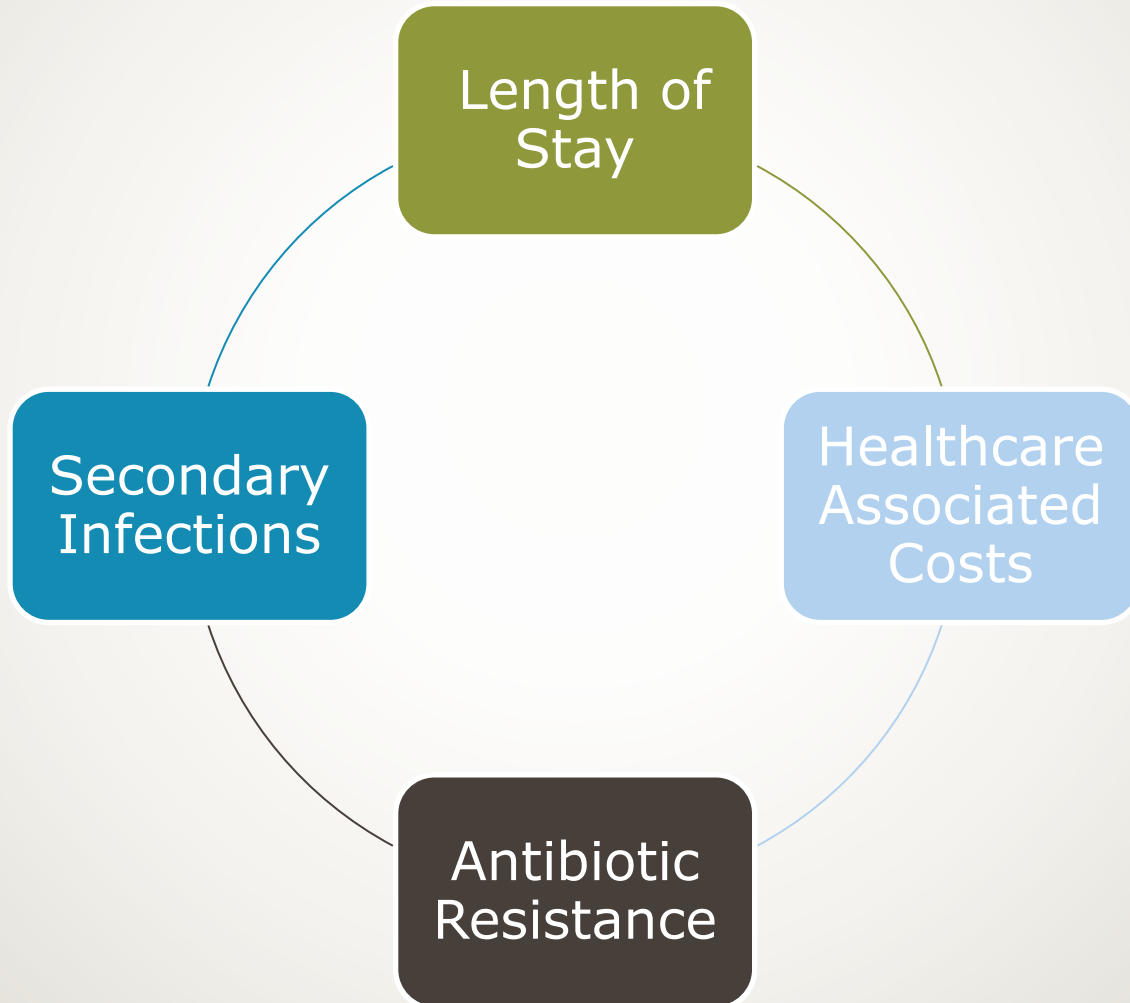


Background



Alternative Antibiotic Prescribing

Alternative Antibiotic Prescribing May Contribute To...



Outcomes

Primary

Frequency with which alternative antibiotics were changed following pharmacist collection of allergy history

Secondary

- Safety following Beta-lactam
- Time to antibiotic change
- Number of allergy profiles updated

Inclusion Criteria



Prescribed an alternative antibiotic

Documented penicillin or cephalosporin
allergy

\geq 18 years of age

Exclusion Criteria



Antibiotic indicated for surgical prophylaxis

Suspicion for ESBL or MRSA

Pregnant or breastfeeding

Antibiotic initiated at an outside facility

Methods

Pre-Intervention Assessment
12/1/18-2/28/19

Pharmacist
Education

Post-Intervention
Assessment
12/1/19-2/29/20

Pharmacist Education



Allergy
Assessment
Tool

Cross Reactivity
Pharmacist
Reference

Allergy
assessment
flow chart

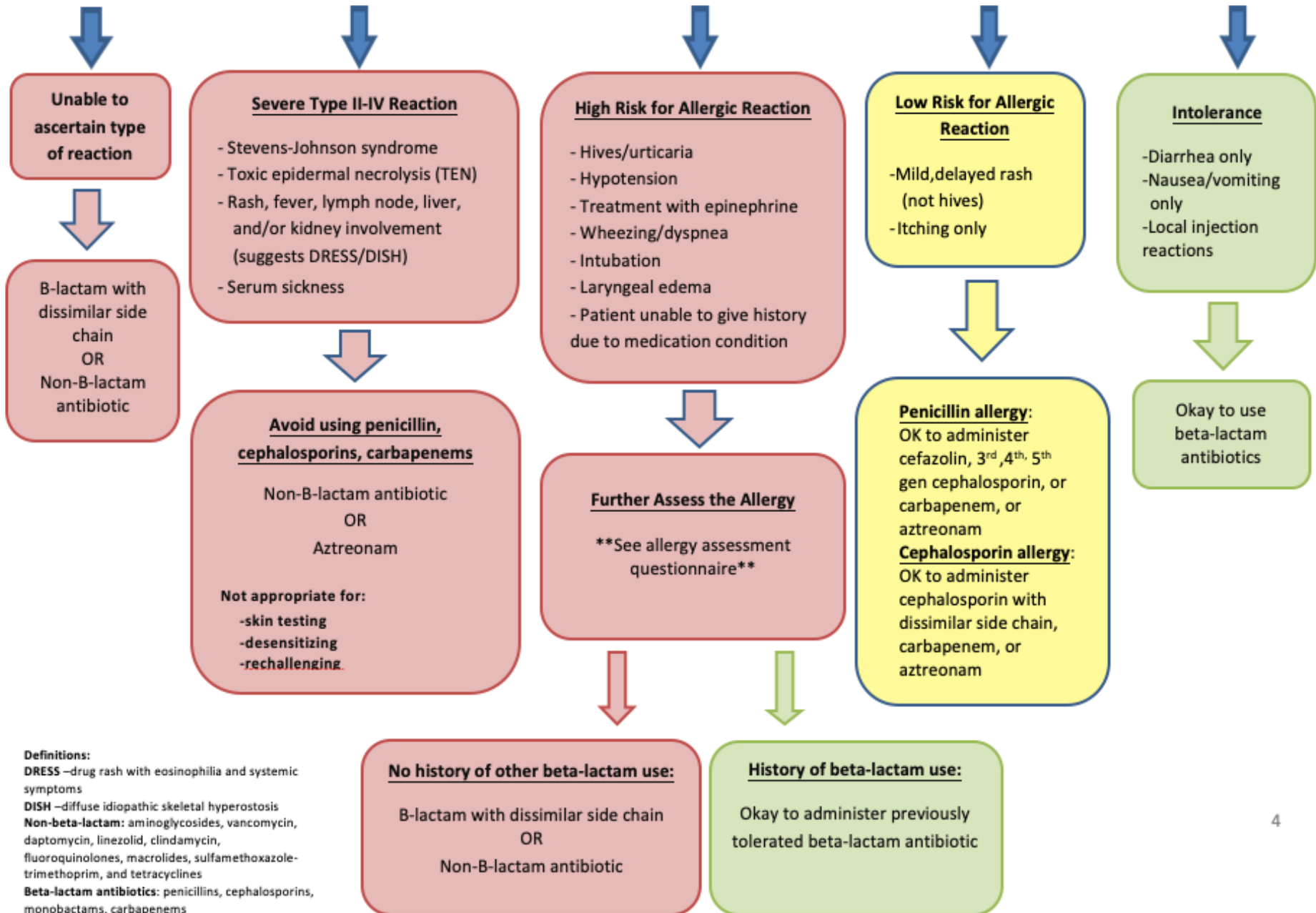
Allergy Assessment Tool

- Patient Profile Assessment
 - Inpatient history
 - Outpatient history
- Allergy History

Cross Reactivity Pharmacist Reference

	AGENT	AGENTS WITH SIMILAR SIDE CHAINS					
Penicillins	Amoxicillin	Ampicillin	Cefaclor	Cefadroxil	Cefprozil	Cephalexin	
	Ampicillin	Amoxicillin	Cefaclor	Cefadroxil	Cefprozil	Cephalexin	
	Penicillin G	Cefoxitin					
1st Generation Cephalosporin	Cephalexin	Amoxicillin	Ampicillin	Cefaclor	Cefadroxil	Cefprozil	
2nd Generation Cephalosporin	Cefaclor	Amoxicillin	Ampicillin	Cefadroxil	Cefprozil	Cephalexin	
	Cefprozil	Amoxicillin	Ampicillin	Cefaclor	Cefadroxil	Cephalexin	
	Cefdinir	Cefixime					
	Cefuroxime	Cefoxitin	Cefotaxime				
	Cefoxitin	Cefuroxime	Penicillin G				
3rd Generation Cephalosporin	Cefixime	Cefdinir	Ceftolozane	Ceftaroline			
	Cefotaxime	Cefditoren	Cefepime	Cefpodoxime	Ceftriaxone	Ceftazidime	Cefuroxime
	Ceftazadime	Aztreonam	Ceftaroline				
	Ceftriaxone	Cefditoren	Cefepime	Cefotaxime	Cefpodoxime		
	Cefpodoxime	Cefditoren	Cefepime	Cefotaxime	Ceftriaxone		
4th Generation Cephalosporin	Cefepime	Cefditoren	Cefotaxime	Cefpodoxime	Ceftriaxone	Cefuroxime	
5th Generation Cephalosporin	Ceftolozane	Aztreonam	Ceftazidime				
Monobactam	Aztreonam	Ceftazidime	Ceftolozane				

B-lactam Allergy Assessment



Definitions:

DRESS –drug rash with eosinophilia and systemic symptoms

DISH –diffuse idiopathic skeletal hyperostosis

Non-beta-lactam: aminoglycosides, vancomycin, daptomycin, linezolid, clindamycin, fluoroquinolones, macrolides, sulfamethoxazole-trimethoprim, and tetracyclines

Beta-lactam antibiotics: penicillins, cephalosporins, monobactams, carbapenems

Demographics

Characteristic	Pre-Intervention N=50	Post-Intervention N=50	P Value
Female n,(%)	32 (64)	39 (78)	0.186
Race n,(%)			
Caucasian	45 (90)	42 (84)	--
African American	2 (4)	4 (8)	
Other	2 (4)	4 (8)	
Unknown	1 (2)	0	
Average Age (years)	66.78	69.26	0.442
Infectious Diseases Consult n,(%)	6 (12)	10 (20)	--

Baseline Allergy Information

Characteristic N, (%)	Pre-Intervention N=50	Post-Intervention N=50	P Value
Type of allergy			
Penicillin	36 (72)	38 (76)	
1 st /2 nd Gen Cephalosporin	1 (2)	1 (2)	
3 rd /4 th Gen Cephalosporin	1 (2)	0	
Cephalosporin All	1 (2)	0	--
Pen + Cephalosporin 1 st /2 nd Gen	4 (8)	10 (20)	
Pen + Cephalosporin 3 rd /4 th Gen	5 (10)	0	
Pen + All Cephalosporin Gen	2 (4)	1 (2)	
Reaction Documentation	29 (58)	21 (42)	0.230
History of IV Beta-Lactam	23 (46)	32 (64)	0.070
History of PO Beta-Lactam	14(28)	24 (48)	0.039
Alternative Antibiotic Prescribed			
Aztreonam	1 (2)	6 (12)	
Clindamycin	3 (6)	1 (2)	
Ertapenem	1 (2)	1 (2)	--
Levofloxacin	39 (78)	31 (62)	
Meropenem	3 (6)	9 (18)	
Vancomycin	3 (6)	2 (4)	

Results

	Pre-Intervention N = 50	Post-Intervention N = 50	P Value
Alternative Antibiotic Use Appropriate n,(%)	38 (76)	38 (76)	1.0
Opportunities for Pharmacist Intervention n,(%)	12 (24)	12 (24)	--
Number of Documented Pharmacist Interventions n,(%)	--	4 (33)	--
Average Time to Antibiotic Change (Days)	--	0 (n=1)*	--

*Intercepted upon verification

Pharmacist Interventions

	Pre-Intervention	Post-Intervention
Total Documented Pharmacist Interventions	0	21
Changes From Alternative Antibiotic (%)	0	10 (48)
Average Time to Antibiotic Change (Days)	--	0.9
Number of Allergy Profiles Updated (%)	--	13 (62)
Incidence of Adverse Drug Reactions	--	1 (5)

Limitations

- Levofloxacin is guideline approved for community acquired pneumonia
- Use of random sample
- Documentation

Future Endeavors

- Development of consistent allergy history documentation process
- Increase number of interventions upon verification
- Reduce use of levofloxacin as first line treatment of community acquired pneumonia
- Expand allergy review to include surgical patients

Questions

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