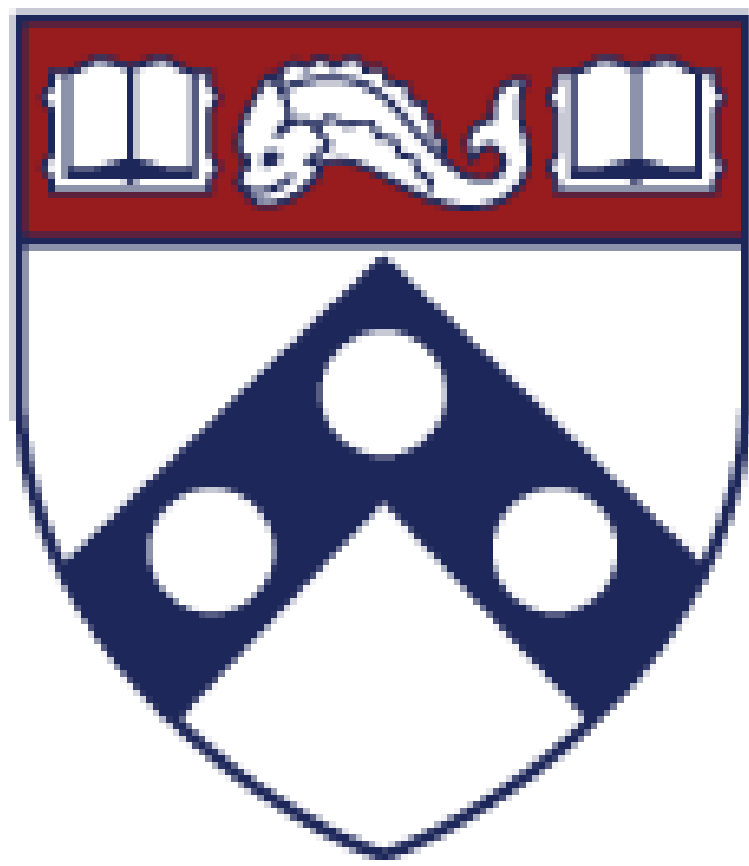
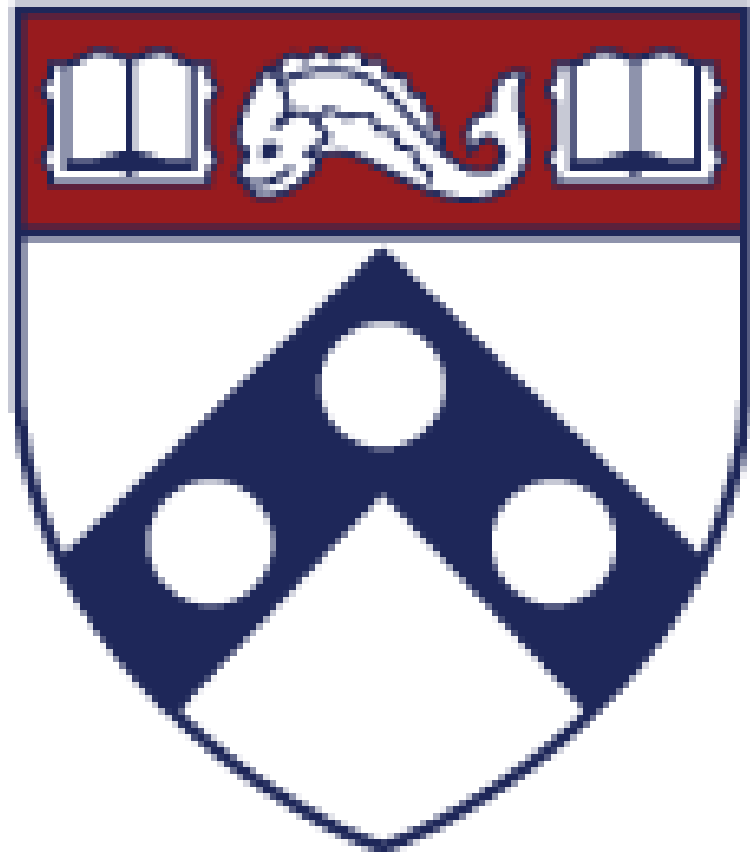




The True Impact of Penicillin Allergies on Implant-Based Breast Surgery: A Multi-Institutional Retrospective Analysis

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Background

- Penicillin allergy (PCA) limits first line perioperative antibiotic use due to feared cross reactivity with first generation cephalosporins.
- Cross reactivity is much lower than commonly thought.
- Divergence from first line antibiotics has been shown to lead to increased rates of postoperative infection in the orthopedic and abdominal wall literature.

Aim

- Assess PCA effects on preoperative antibiotic use and post-operative outcomes for breast implant patients.

Methods

- TriNetX Nation Health Research Network – a multi-institutional electronic health record database.
- Retrospectively evaluated patients undergoing breast tissue expander or implant placement for reconstructive or cosmetic surgery from July 2016 to July 2024.
- Primary outcomes:
 - Choice of preoperative antibiotic
 - Presence of infection within 90 days of surgery
- Propensity matching controlled for age, race, presence of breast cancer, obesity, diabetes mellitus, and smoking status.

Results

- 57,157 patient met inclusion criteria
- 2,844 (5%) patients had a documented PCA
- PCA patients were older and had higher rates of breast cancer, obesity, diabetes mellitus, and tobacco use (all $p < 0.001$)
- No difference in anaphylaxis rates between groups

Pre-Operative Antibiotic Use			
	PCA	Control	P-value
First Generation Cephalosporin	55.3%	88.7%	<0.001
Clindamycin	57.9%	13.4%	<0.001
Vancomycin	19.8%	12.3%	<0.001
Quinolone	9.5%	2.5%	<0.001

Infectious Complications			
	PCA	Control	P-value
Any Post-operative Infection	14.0%	8.1%	<0.001
Cellulitis	10.9%	5.5%	<0.001
Abscess	2.4%	1.2%	<0.001
Unplanned Removal	10.4%	7.2%	0.01

Results

- Propensity match yielded 2,844 matched pairs

	PCA	Control	P-value
First Generation Cephalosporin	56.6%	87.0%	<0.001
Any Post-operative Infection	9.8%	7.3%	0.001
Cellulitis	7.4%	5.4%	0.001
Abscess	1.4%	0.8%	0.031
Unplanned Removal	5.9%	4.7%	0.041

Conclusions

- PCA strongly influences preoperative antibiotic choice.
- PCA leads to increased rates of postoperative breast prosthesis infection and increased rates of unplanned removal.
- Further work should address risk stratifying patients for potential cross reactivity and methods to improve rates of first line antibiotics use in patients with documented PCA.

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