

MSQC – ASPIRE Collaborative
Meeting
4/21/23

Rajan Ravikumar MD
Clinical Assistant Professor
Division of Allergy and Clinical Immunology
Michigan Medicine

Disclosure

- None

True Beta-Lactam Allergy is uncommon...

 10-15% of patients in the United States report a beta-lactam allergy

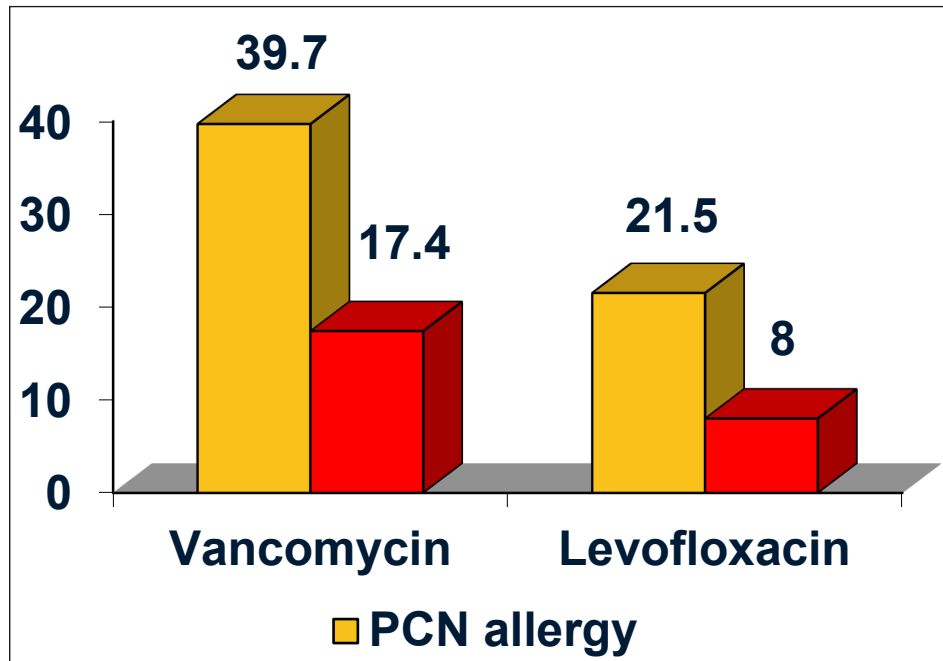
 >90% patients who report a beta-lactam allergy are not allergic

True Beta-Lactam reactions often wane over time

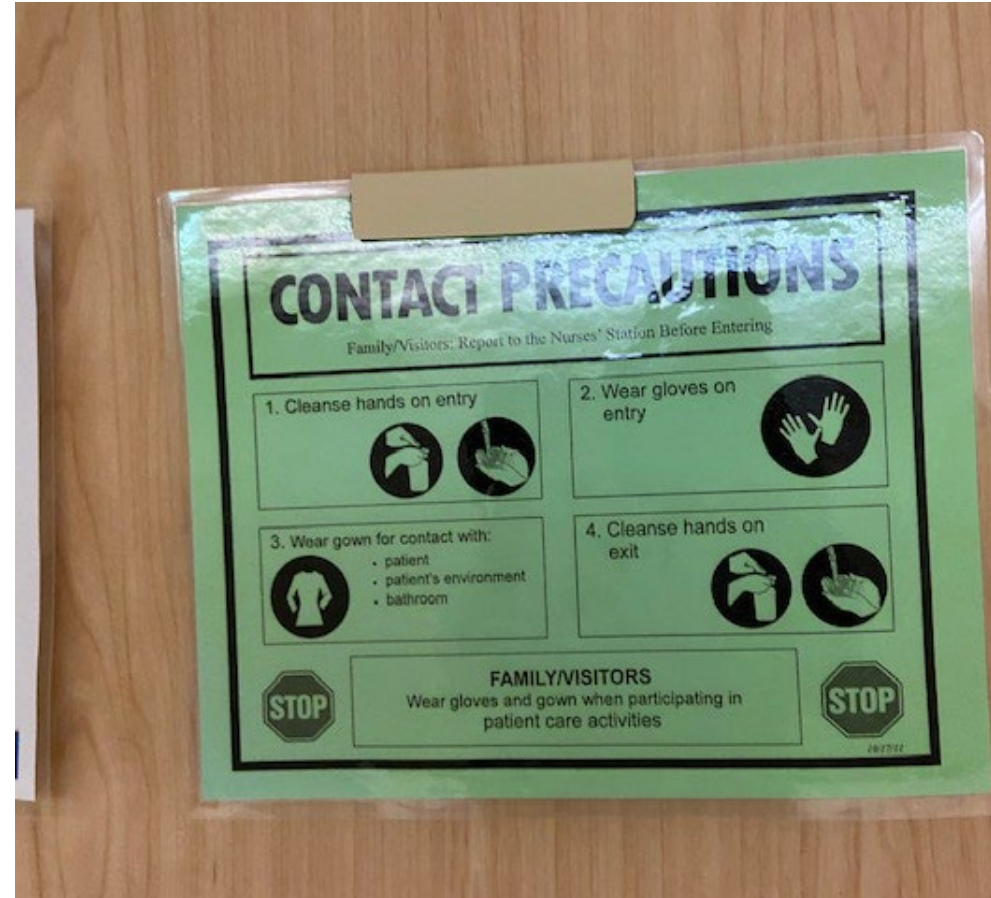
- PCN - 50% - 5 years, 80% - 10 years
- Ceph – 60-70% - 5 years



Impact of beta-lactam allergy label



Lee CE. Arch Inter Med. 2000.



Macy E. JACI 2014

Blumenthal. BMJ 2018

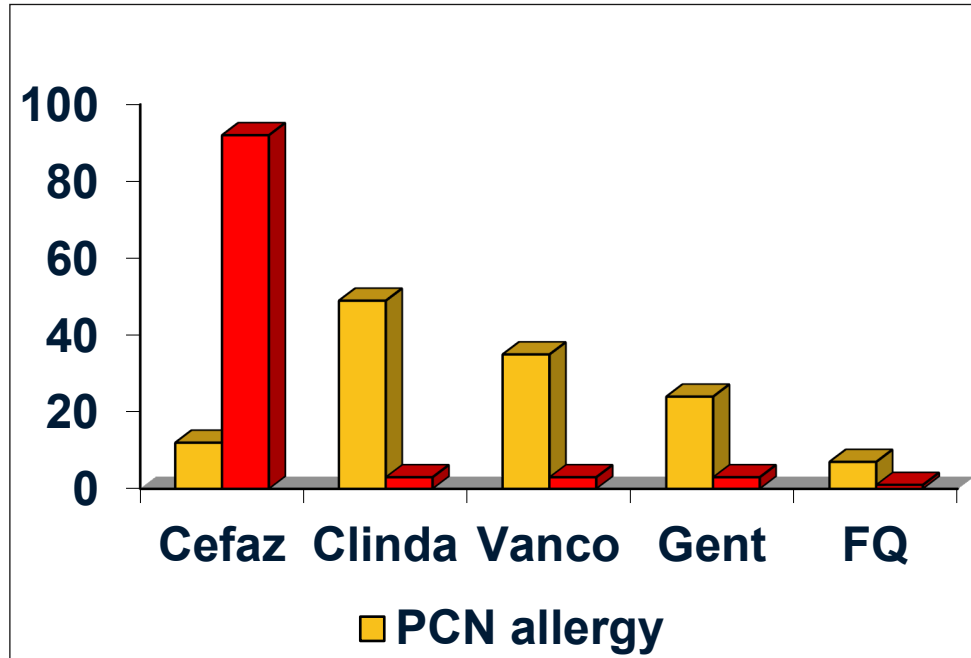
Blumenthal. CID Feb 2018; 66

↑ 23%
C. diff

↑ 30%
VRE

↑ 69%
MRSA

Surgical Prophylaxis



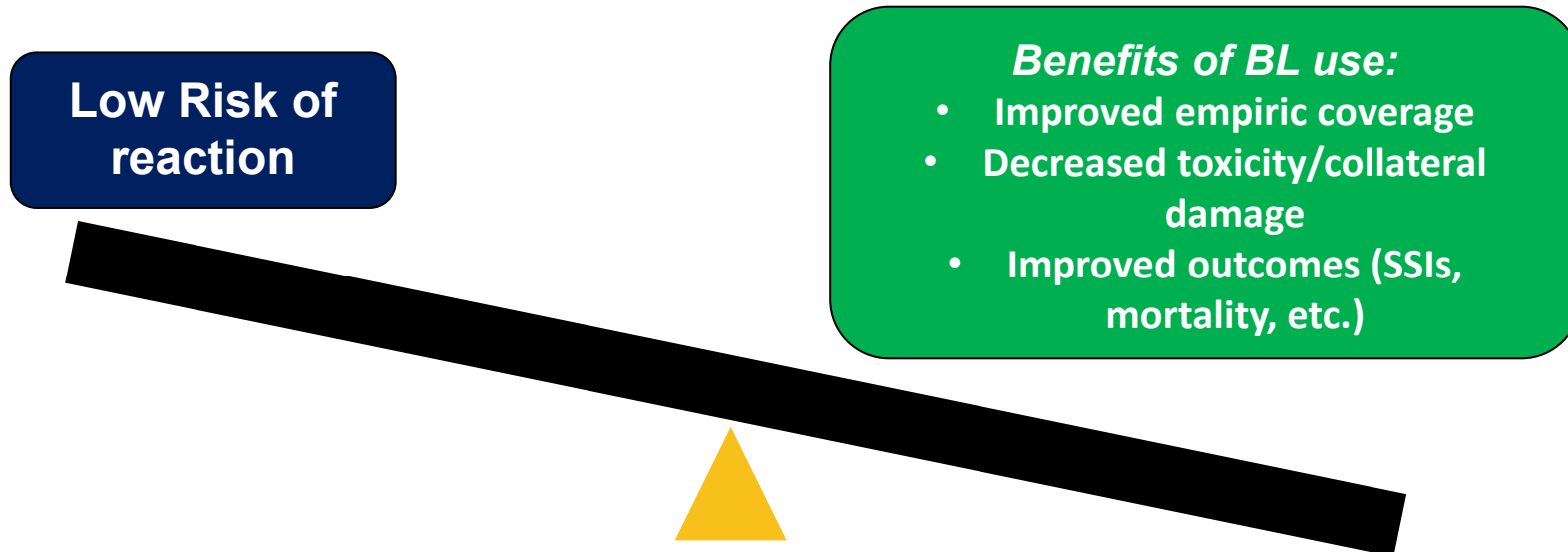
- Alternatives also suboptimal:
 - Longer infusion (vanco/quinolones)
 - More toxic (vanco/gent)
- MGH: 8385 patients
 - PCN allergy associated with SSI on MV model (OR **1.51**; 95% CI 1.02- 2.22)
- UM Colorectal: 9,949 patients
 - Prophylaxis with non-beta-lactam associated with SSIs (OR **1.65**; 1.20- 2.26)
- Sunnybrook Toronto: 3,589 pts
 - BL allergy associated with SSIs (OR **1.61**; 1.04- 2.51).

Risk-Benefit

- Historical View:



- Updated View:

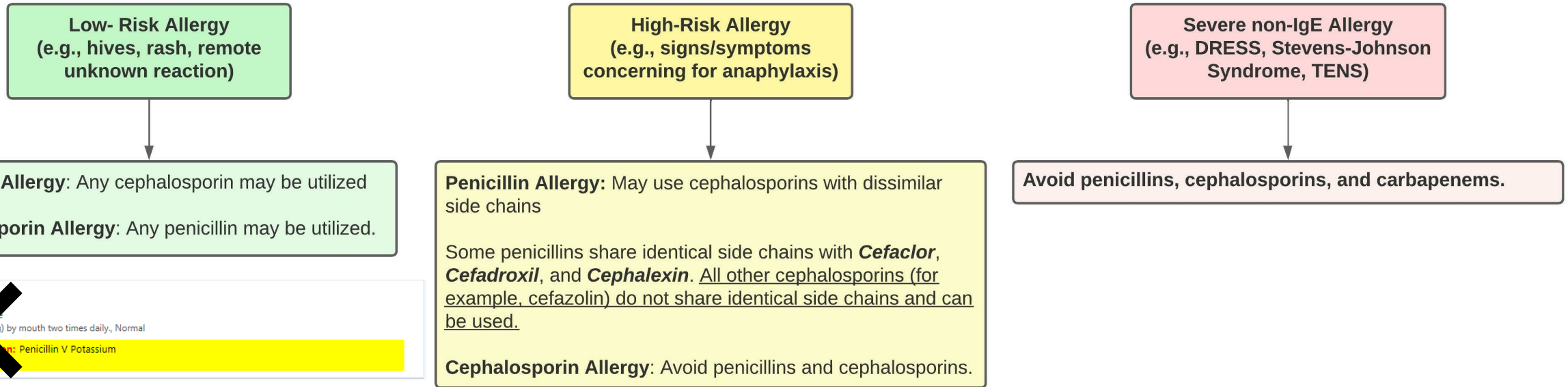


Michigan Medicine Initiatives

- Empiric Therapy Guidance
- In-patient Service (BLAES)
- Out-pt referrals



Empiric Therapy Guidance

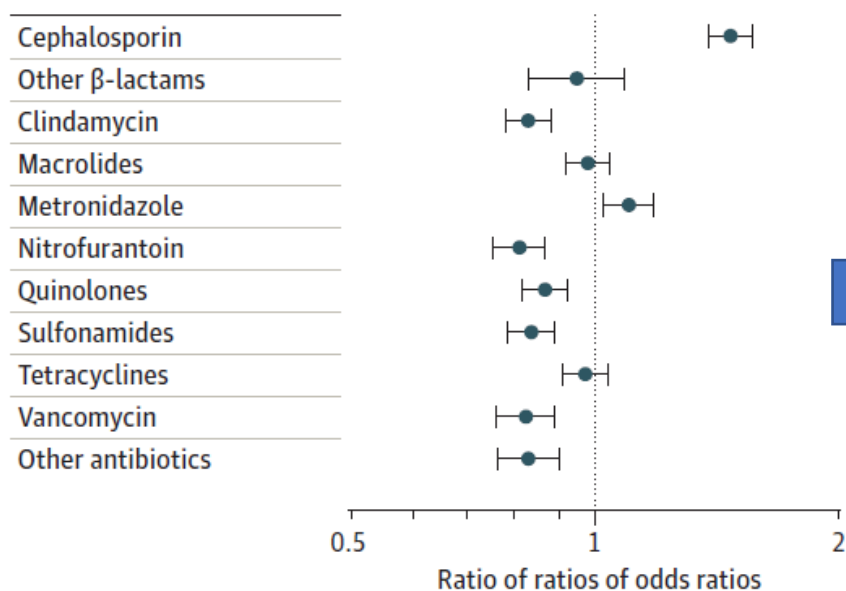


- **Bottom line:** *almost all patients with penicillin allergies, including anaphylaxis, can safely receive cephalosporin-based pre-operative surgical prophylaxis with recommended agents such as **cefazolin**. This will avoid less efficacious/more toxic therapies like clindamycin, aminoglycosides, and vancomycin.*

Remove Beta-Lactam Allergy Warnings

- Kaiser Permanente Southern California - Removed the warning
- Kaiser Permanente Northern California - Retained the warning

Figure. Multinomial Logistic Regression of Changes in Antibiotic Use Among Patients With Penicillin Allergies



↑ 47% Cephalosporins

Beta-Lactam Allergy Evaluation Service (BLAES)

- Two 1.2FTE NP's – July 2021 to Present
- **Inpatient** Adult, Peds, OB/Gyn patients
- Mon-Fri 8-5pm



Primary Team or ID pharmacy

Penicillin Allergy Evaluation
PATIENT RESULTS CARD


Name: _____
Date: _____

On the above date, my penicillin allergy was evaluated and the results were:

I am currently NOT allergic and can take penicillin drugs and have tolerated _____

I am allergic to penicillin drugs and should not take them _____

Unclear *Consult physician for further details.



Michigan Medicine Experience

BLAES service >800 labels removed or updated

- **>98%** drug challenges were negative (only 2 needed epinephrine)
 - **>30% by Medication History Review**
 - **>50%** - Low Risk - Drug challenge without prior penicillin skin testing
 - **<6%** of patients experienced relabeling of their beta-lactam allergy

Out-patient dedicated Beta-Lactam appts and consult order

- Reduced avg. wait time for appt from >3 months to under 3 weeks.

Removed the beta-lactam warning label for low-risk patients



Clinical Experience and Quality

THANK YOU



MICHIGAN MEDICINE
UNIVERSITY OF MICHIGAN

Team Members:

- Rajan Ravikumar MD – Allergy
- Lauren Barhitte FNP and Becka Hanson FNP – BLAES
- Tejal Gandhi MD – Infectious Disease
- Greg Eschenauer PharmD, Samuel Aitken Pharm D, and Jerod Nagel Pharm D – Antimicrobial Stewardship Pharmacy
- Nonie Arora MD – Internal Medicine
- Vince Marshall MS – Clinical Pharmacy
- Katie Barwig, RN – CNO Admin
- Linda Bashaw – HITS
- Sheri Penar – HITS
- Matt Enell, PharmD – HITS
- Liz Spranger – Internal Medicine Quality