Beta-Lactam Cross-Reactivity

Risk of cross-reactivity among beta-lactams is lower than previously reported

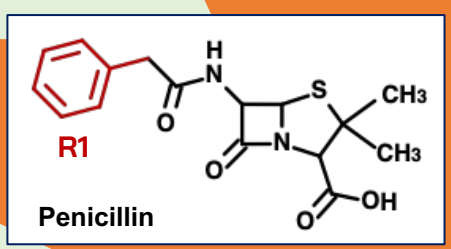
Pre-1980:
Over estimation of the degree of cross-reactivity between beta-lactams

- 1st generation cephalosporins were contaminated with benzylpenicillin
- Included in vitro and retrospective studies not supported by skin testing
- Diagnosis of penicillin allergy largely based on clinical history

10-20%
Pre-1980s

< 1%
Post-1980s

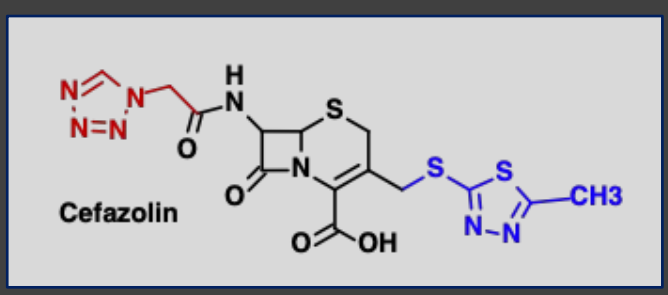
Risk of cross reactivity between penicillin and a cephalosporin with a ***dissimilar*** side chain is negligible

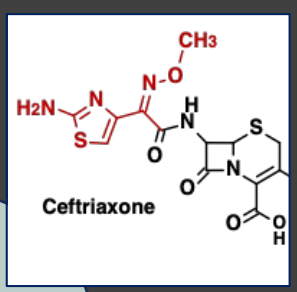


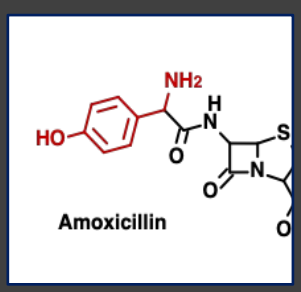
- Allergic reactions to cephalosporins are more so directed at the **R-side chain** than the beta-lactam ring.
- Most compelling evidence of cross-reactivity is for ***identical*** side chains sharing an **R1 group**.

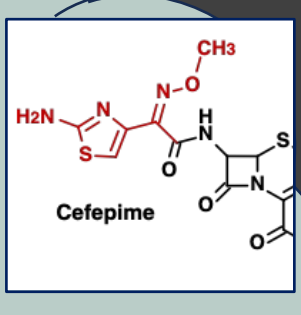
CEFAZOLIN (Ancef)

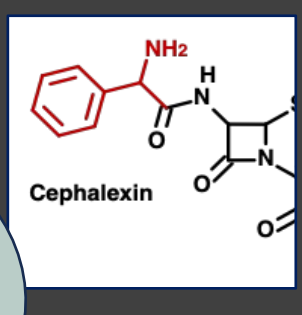
- **Unique R1 side chain**
- A non-cross-reactive cephalosporin











Patients with a history of anaphylaxis to penicillin, can be administered cefazolin without prior testing.

Preferred beta-lactam for:

Surgical prophylaxis
Invasive MSSA uncomplicated bacteremia
Early treatment of uncomplicated cystitis in hospitalized patients

1. Pichichero ME and Casey R. Safe use of selected cephalosporins in penicillin-allergic patients: a meta-analysis. *Otolaryngology–Head and Neck Surgery.* 2007;136(3):340-7.
2. Romano A, Valluzzi RL, Caruso C, et al. *J Allergy Clin Immunol Pract.* 2018;6(5):1662-1672.
3. Kahn AD, Banerji A, Blumenthal KG, et al. Drug allergy: A 2022 practice parameter update. *J Allergy Clin Immunol* 2022;150(6):1333-1393.