

Cefuroxime is a safe alternative for penicillin allergic patients

The BC Centre for Disease Control (BCCDC) is collaborating with the UBC Therapeutics Initiative (TI) on a project related to providing [prescribing Portraits to dentists on appropriate antibiotic use in dentistry](#).

Surveillance on dental antibiotic prescribing in BC have shown alarmingly high rates of **clindamycin** prescribing in comparison to international studies.¹ One presumable reason for high rates of clindamycin prescribing is its use as an alternative agent for “penicillin allergic” (PCN-allergic) patients. The best available evidence indicates that clindamycin is **not more** efficacious yet is **more strongly** associated with the development of *C. difficile* colitis than other antibiotics.²

Pharmacists are reminded that beta-lactam allergies, particularly allergies to penicillin, are overreported, with about 10% of individuals reporting an allergy in the US.³ However, most reported penicillin allergy is **not** associated with clinically significant IgE-mediated reactions after penicillin rechallenge.⁴

Furthermore, recent studies show the cross-reactivity between penicillins and cephalosporins is less than 1% (and no way near the originally quoted 5% rate).⁵ Cross-reactivity rate between penicillin and cephalosporins depends on the similarity of side chain structure.⁶ Cephalexin has a similar side chain and is not safe for PCN-allergic patients. Because cefuroxime’s side chain does not resemble that of amoxicillin or penicillin, it can be used safely.⁷ Very rare but severe reactions such as Stevens-Johnson syndrome, which includes the peeling of skin and usually requires intensive care, remain contraindications to prescribing any beta-lactam (including all cephalosporins).

The following advice is being given by BCCDC and the TI to dentists:

Do not use clindamycin routinely for prophylaxis or management of dental infections. Cefuroxime is a safe option for most patients who HAVE a true penicillin allergy.

Details for antibiotic selection for prophylaxis and treatment of dental infections

In the few patients for whom Bugs & Drugs suggests prophylaxis, prescribe:

- A single 2g oral dose of amoxicillin given 30-60 minutes before dental surgery, OR
- A single 500mg oral dose of cefuroxime, if the patient has penicillin allergy

When you receive a cefuroxime prescription from a dentist for a patient with penicillin allergy, remember that it is a safe option, and may be dispensed. For further information, please see the [Bugs & Drugs Guidelines](#) on antibiotic use for dental infections.

References

¹Thompson W, Teoh L, Hubbard CC, et al. Patterns of dental antibiotic prescribing in 2017: Australia, England, United States, and British Columbia (Canada). *Infect Control Hosp Epidemiol* 2021; 1–8; ²Brown KA, et al. *Antimicrobial Agents & Chemotherapy* 2013; 57(5):2326–32; ³Macy E. *Curr. Allergy Asthma Rep* 2014;14:476; ⁴Sacco KA, et al. *Allergy* 2017;72:1288-1296; ⁵Zagursky RJ, Pichichero ME. *J Allergy Clin Immunol Pract.* 2018;6(1):72-81; ⁶Picard M, et al. *The Journal of Allergy & Clinical Immunology in Practice* 2019; 7(8):2722-2738.e5. DOI: [10.1016/j.jaip.2019.05.038](https://doi.org/10.1016/j.jaip.2019.05.038); ⁷Patrick DM, et al. *BCM J* 2019; 61(9):350–351,361. <https://bcmj.org/bccdc/beta-lactam-allergy-benefits-de-labeling-can-be-achieved-safely>.