



Antimicrobial Stewardship Program (ASP) Steering Committee

To: SHC Clinicians

From: SHC Antimicrobial Stewardship Program Steering Committee

Re: Statement supporting ceftriaxone de-escalation for urinary tract infection

The goal of antimicrobial stewardship is to promote appropriate antibiotic use to optimize patient outcomes and reduce unintended consequences including *C. difficile* infection, development of resistance and adverse drug effects.

Third generation cephalosporins have a strong association with *C. difficile* infection and increasing ESBL rates.

- Third generation cephalosporins were found to have the strongest association between antibiotic use and HO-CDI. The risk is 3X greater vs first generation cephalosporins.^{1,2}
- Inpatient ESBL rates across SHC hospitals have increased to 20-25%. Studies have demonstrated an association between ceftriaxone consumption and the prevalence of ESBL-producing Enterobacterales.³

Antibiotic de-escalation from ceftriaxone to a narrow spectrum agent (e.g. cefazolin) for treatment of UTI +/- bacteremia is recommended to reduce unnecessary broad-spectrum antibiotic exposures.

- In 2012, CLSI reduced the cefazolin breakpoints for Enterobacterales to MIC ≤ 2 in order ensure adequate exposures. Current breakpoints are based on cefazolin 2g Q8H dosing.
- Urinary cefazolin breakpoints remain higher at susceptible MIC ≤ 16 .
- Therefore, it is advisable to await blood culture susceptibilities result prior to de-escalating.
- Please refer to our [GN-BSI PO de-escalation guide](#) for preferred IV to PO stepdown options.

Reasonable exceptions to de-escalation include:

- Treatment of polymicrobial infections
- Treatment of infection in the setting of multiple sources where IV Ceftriaxone is absolutely needed
- Patients with pending discharge w/in 24 hours
- Continuation of once daily ceftriaxone for OPAT

Acute kidney injury and/or for the convenience of once daily administration are not considered reasonable exceptions to de-escalation in the inpatient setting.

References:

1. Slimings C, Riley TV. Antibiotics and healthcare facility-associated *Clostridioides difficile* infection: systematic review and meta-analysis 2020 update. J Antimicrob Chemother. 2021 Jun 18;76(7):1676-1688.
2. Kazakova S, Baggs J, McDonald C et al. Association Between Antibiotic Use and Hospital-onset *Clostridioides difficile* Infection in US Acute Care Hospitals, 2006-2012: An Ecologic Analysis. Clin Infect Dis. 2020 Jan 1;70(1):11-18.
3. Arulappen AL, Khan AH, Hasan SS, et al. The correlation between antibiotic usage and antibiotic resistance: a 3-year retrospective study. Front Cell Infect Microbiol. 2025;15:1608921.