Who should receive alternative prophylactic regimens for prostate biopsy? A comprehensive look at risk factors for infection after biopsy.

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Introduction and Objectives
Hospital admission rates for infection secondary to fluoroquinolone (FQ) resistant E. coli following TRUS-guided prostate biopsy have dramatically increased in the last decade. We describe a retrospective case series designed to characterize risk factors for infection and FQ resistance.

Methods
We retrospectively evaluated the medical records of 492 patients who underwent TRUS guided prostate biopsy between 2009 and 2011. Patients’ charts were evaluated for risk factors and complications. Infection was the primary outcome and FQ resistance was the secondary outcome. The following covariates were tested for each outcome: age, race, diabetes mellitus, immunosuppression, catheterization, prostate volume, PSA level, number of biopsy cores obtained, history of prior prostate biopsy, number of past biopsies, active surveillance status, history of UTI, prostatitis, epididymitis, or sepsis, antibiotic use in the past four weeks, use of peri-operative antibiotics, and prior FQ use. Analyses were performed using STATA 12.0 (Stata Corporation, College Station, TX.)

Results
Of 492 patients evaluated, 5.69% developed infections. 81.3% of patients with positive cultures were infected with E. coli and 92.3% of these were FQ resistant. All patients except two received four days of ciprofloxacin prophylaxis. 4.6% of patients received additional Intra-operative antibiotics. Additional antibiotics were not associated with decreased risk of infection (p=.638). In our analysis, prostate volume (p = .028), presence of an indwelling catheter (p = .008), African American race (p=.032), Asian ethnicity (p =.021) and history of catheterization (p=.008) were significantly associated with infection after biopsy. Active surveillance (AS) was not associated with infection (p=.301) nor was history of FQ use (p=.889). Most notably, prior FQ use was not a risk factor for FQ resistance (p=.653), despite the fact that over 50% of the population had prior FQ use.

Conclusions
Prior FQ use is not associated with infection or FQ resistance indicating that FQ resistance must be acquired by another mechanism. The subgroup who received FQ plus additional antibiotics did not show a decrease in infection rate as compared to those who received FQ monotherapy implying that targeting high risk patients may be ineffective.