



Guide for Culture-Specific versus Augmented Prophylaxis for TRUS Prostate Biopsy

The following chart provides recommendations for prophylactic antibiotic(s) when performing TRUS-guided biopsy of the prostate either with or without use of a pre-biopsy rectal swab culture. While we recognize that not all practices will implement this approach, we do encourage the use of rectal swabs and culture-specific antibiotics to reduce patient exposure to more potent antibiotics, as well as to reduce the development of additional resistant strains of bacteria in our local communities.

For patients undergoing a pre-biopsy rectal swab, the physician will communicate the appropriate antibiotic therapy to the staff and ultimately the patient. If no fluoroquinolone-resistant bacteria are isolated, the staff should proceed with **standard antibiotic prophylaxis** (typically a fluoroquinolone like ciprofloxacin). If the culture identifies fluoroquinolone-resistant organisms, the physician should communicate to the staff the **appropriate alternative antibiotic regimen** (see chart below for medication and dosing recommendations).

If a rectal swab is not performed, or if the culture results are not available on the day of the biopsy, the staff member should notify the attending urologist and plan to utilize **augmented antibiotic prophylaxis**. With this approach, the patient will receive the planned dose of fluoroquinolone, as well as a second agent (e.g., Gentamicin or Cefazolin) according to the protocol. This approach acts as a safeguard in the event that the patient is harboring fluoroquinolone-resistant bacteria; in which case ciprofloxacin alone would be insufficient to prevent an infectious complication.

Current AUA Guidelines	
<i>Antimicrobial of Choice:</i>	<i>Alternate Antimicrobials:</i>
Fluoroquinolone or Trimethoprim / Sulfamethoxazole or 1 st / 2 nd / 3 rd Cephalosporin IM or IV	Aminoglycoside IM or IV + / - Metronidazole IV or Clindamycin IM or IV



Culture-Specific Antibiotics (Rectal Swab Culture) * (See IV for High-Risk patients)		
Culture Sensitive to Ciprofloxacin:	Culture Resistant to Ciprofloxacin but sensitive to TMP/SMX or Cephalosporins:	Culture Resistant to Ciprofloxacin, Cephalosporins, TMP/SMX: (IV antibiotics required for ESBL*)
Ciprofloxacin or Levofloxacin PO	Culture directed antibiotics: (e.g., TMP/SMX PO, Cefazolin IM, Ceftriaxone IM)	Gentamicin IM + / - Clindamycin IM
Augmented Antibiotics (No Culture Available) ** (IM antibiotics should be administered 30 – 60 minutes before the procedure)		
Antimicrobial of Choice:	Alternate Antimicrobials:	Allergic to Penicillins, Fluoroquinolones, and Cephalosporins: (IV antibiotics recommended if infection history*)
Fluoroquinolone (Ciprofloxacin or Levofloxacin) PO + Gentamicin IM**	Fluoroquinolone (Ciprofloxacin or Levofloxacin) PO or Bactrim PO + Cefazolin IM** or Alternative based on local antibiogram (e.g., Cefuroxime, Zosyn)	Gentamicin IM** or Bactrim PO + / - Clindamycin IM**

Medication Dosing Guidelines:

- Ciprofloxacin:** (500mg tablet)
1 tablet PO at least one hour before biopsy and 1 tablet PO on evening after biopsy
- Levofloxacin:** (750mg tablet)
1 tablet PO single dose (60 min prior)
If using multiple doses please consult your local hospital guidelines
- TMP/SMX:** (Double-strength tablet)
1 tablet PO at least one hour before biopsy and 1 tablet PO on evening after biopsy
- Cefazolin:** (Kefzol)
(1gm vial; dilute in 2.5mL of sterile water = **3mL** solution) WEIGHT BASED PROTOCOL
1gm (3mL) IM for patients < 80kg
2gm (3mL x2) IM for patients ≥ 80kg - **NOTE:** 2 separate injections, 1gm each
Peak serum concentration at 1-2 hours
- Ceftriaxone:** (Rocephin)
(1gm vial; dilute in 2.1mL of sterile water or NS = **2.9mL** solution)
1gm (2.9mL) IM, single injection - **NOTE: Peak serum concentrations at 1-2 hours**
- Gentamicin:** (40mg/mL premixed vial)
120-160mg (3-4mL) IM, single injection - **NOTE: Peak serum concentrations at 30-60 minutes**
- Clindamycin:** (150mg/mL premixed vial)
600mg (4mL) IM, single injection - **NOTE: DO NOT EXCEED 600mg IM**
Peak serum concentrations at 1-3 hours
- Bactrim:** 1 double-strength tablet one hour before, and 12 hours after the procedure.

IM antibiotics should be administered 30-60 minutes before the procedure.



NOTE: It is recommended that the duration of therapy for all prophylaxis regimens be \leq 24 hours.

† - When used alone, oral cephalosporins are not recommended by the AUA or SCIP guidelines due to the lack of research available on the pharmacokinetics and soft-tissue penetration.

* IV Administration for High Risk Patients:

The following patients are classified as High Risk an alternate antibiotic regimen.

NOTE: For IV antibiotics, the prostate biopsy must begin less than 60 min after starting the infusion.

- Extended spectrum beta-lactamase (**ESBL**) bacteria identified on rectal swab.
History of biopsy-related infection from a resistant organism.
History of prostatitis (i.e., unresponsive to fluoroquinolones or received multiple courses of fluoroquinolones).

Gentamicin: (Premixed in saline **OR** dilute using 40mg/mL vials[‡]) WEIGHT BASED PROTOCOL
2mg/kg with maximum dose of 300mg IV
[‡] If using 40mg/mL vials dilute in **50-200mL** of normal saline (conc. 1-1.6 mg/mL)
and infuse over 30-120 min

Fosfomycin: 3Gm PO the night before the procedure

Protocol for Rectal Swab Culture

Obtaining the rectal culture:

- Culture swab (e.g. E-Swab) of the rectum at the time of digital rectal exam.
 - Transportation to the lab at room temperature.
 - Recommend delivery without delay to prevent an inadequate culture.
- Alternatively, a stool culture may be obtained.
 - Cary Blair medium will be required for transportation.

Lab analysis of culture:

- Two separate MacConkey agar plates are inoculated with the swab:
 - One standard MacConkey agar plate (**MAC**) for routine culture to use as a control.
 - One MacConkey agar plate with Ciprofloxacin (**MACIP**) to test for fluoroquinolone resistance.

Interpretation of results:

After 24 and 48 hours, the cultures are evaluated for growth.

1. If you have normal growth on the MAC, and obvious sensitivity to Ciprofloxacin on the MACIP then no further testing is required.
 - *Proceed with biopsy after routine administration of **Ciprofloxacin**.*
2. If you have normal growth on the MAC, but it shows growth on the MACIP (i.e., bacteria resistant to Ciprofloxacin) then further culture testing with VITEK will be required for identification and antibiotic sensitivities.
 - *Utilize the sensitivities along with the **Culture-Specific Antibiotics** guide to determine the best prophylactic antibiotic.*
3. If no growth is demonstrated on the MAC (control), an insufficient sample is implied.
 - *Plan for **Augmented Antibiotics** coverage OR you may submit another sample.*