

Table V: Recommended antimicrobial prophylaxis for urologic procedures

The recommendations listed herein are based on general consensus. Antibiotic choices should be based on “local” resistance patterns, antibiograms, and institutional policies, which may supersede the guidance listed in the Table below.

Procedure	Likely Organisms	Prophylaxis Indicated	Antimicrobial(s) of Choice	Alternative Antimicrobial(s), if required	Duration of Therapy ¹
Lower Tract Instrumentation					
Cystourethroscopy with minor manipulation, break in mucosal barriers, biopsy, fulguration, etc.; clean-contaminated	GNR, rarely enterococci [†]	Uncertain [§] ; consider host-related risk factors [‡] Increasing invasiveness increases risk of SSI	TMP-SMX <i>or</i> Amoxicillin/Clavulanate	1 st /2 nd generation Cephalosporin <i>or</i> Aminoglycoside +/- Ampicillin <i>or</i> Aztreonam [‡] +/- Ampicillin	Single dose
Transurethral Cases: e.g., TURP, TURBT, laser enucleative and ablative procedures, etc.; clean-contaminated ^l	GNR, rarely enterococci	All cases	Cefazolin <i>or</i> TMP-SMX	Amoxicillin/Clavulanate <i>or</i> Aminoglycoside +/- Ampicillin <i>or</i> Aztreonam [‡] +/- Ampicillin	Single dose
Prostate brachytherapy or cryotherapy; clean-contaminated	<i>S. aureus</i> , skin; GNR	All cases	Cefazolin	Clindamycin ^{**}	Single dose

Lower Tract Instrumentation					
Transrectal prostate biopsy; contaminated	GNR, anaerobes ^{††} ; consider multi-drug resistance coverage, if risks of systemic antibiotics within six months, international travel, healthcare worker	All cases	Fluoroquinolone <i>or</i> 1 st /2 nd gen. Cephalosporin +/- Aminoglycoside <i>or</i> 3 rd gen. Cephalosporin	Aztreonam May need to consider infectious disease consultation	Single dose
Upper Tract Instrumentation					
Percutaneous renal surgery, e.g., PCNL; clean-contaminated	GNR, rarely enterococci, and skin ^{††} , <i>S. aureus</i>	All cases	1 st /2 nd gen. Cephalosporin <i>or</i> Aminoglycoside and Metronidazole <i>or</i> Aztreonam [‡] and Metronidazole <i>or</i> Aminoglycoside and Clindamycin <i>or</i> Aztreonam [‡] and Clindamycin	Ampicillin/Sulbactam	≤24 hours

Ureteroscopy, all indications; clean-contaminated	GNR, rarely enterococci,	All cases; of undetermined benefit for uncomplicated diagnostic only procedures.	TMP-SMX <i>or</i> 1 st /2 nd gen. Cephalosporin	Aminoglycoside +/- Ampicillin <i>or</i> Aztreonam [‡] +/- Ampicillin <i>or</i> Amoxicillin/Clavulanate	Single dose
Open, Laparoscopic or Robotic Surgery					
Without entering urinary tract, e.g., adrenalectomy, lymphadenectomy, retroperitoneal or pelvic; clean	<i>S. aureus</i> , skin	Consider in all cases; may not be required	Cefazolin	Clindamycin	Single dose
Penile surgery, e.g. circumcision, penile biopsy, etc.; clean-contaminated	<i>S. aureus</i>	Likely not required			
Urethroplasty; reconstruction anterior urethra, stricture repair, including urethrectomy; clean; contaminated; controlled entry into the urinary tract	GNR, rarely enterococci, <i>S. aureus</i>	Likely required	Cefazolin	Cefoxitin <i>or</i> Cefotetan <i>or</i> Ampicillin/Sulbactam	Single dose

Open, Laparoscopic or Robotic Surgery					
Involving controlled entry into urinary tract e.g. renal surgery, nephrectomy, partial or otherwise, ureterectomy pyeloplasty, radical prostatectomy; partial cystectomy, etc.; clean-contaminated	GNR (<i>E. coli</i>), rarely enterococci	All cases	Cefazolin <i>or</i> TMP-SMX	Ampicillin/Sulbactam <i>or</i> Aminoglycoside and Metronidazole <i>or</i> Aztreonam [‡] and Metronidazole <i>or</i> Aminoglycoside and Clindamycin <i>or</i> Aztreonam [‡] and Clindamycin	Single dose
Involving small bowel (i.e., urinary diversions), cystectomy with small bowel conduit, other GU procedures; uretero-pelvic junction repair, partial cystectomy, etc.; clean-contaminated	Skin, <i>S. aureus</i> , GNR, rarely enterococci	All cases	Cefazolin	Clindamycin and aminoglycoside <i>or</i> Cefuroxime (2 nd generation cephalosporin) <i>or</i> Aminopenicillin combined with a β -lactamase inhibitor and Metronidazole (optional)	Single dose

Open, Laparoscopic or Robotic Surgery

Involving large bowel ^{SS} ; colon conduits; clean- contaminated	GNR, anaerobes	All cases	Cefazolin and Metronidazole <i>or</i> Cefoxitin and Metronidazole <i>or</i> Cefotetan and Metronidazole <i>or</i> Ceftriaxone and Metronidazole <i>or</i> Ertapenem NB: these IV agents are used along with mechanical bowel preparation and oral antimicrobial (neomycin sulfate + erythromycin base or neomycin sulfate + metronidazole)	Ampicillin/Sulbactam <i>or</i> Ticarcillin/Clavulanate <i>or</i> Piperacillin/Tazobactam	Single parenteral dose
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Open, Laparoscopic or Robotic Surgery					
Implanted prosthetic devices: AUS, IPP, sacral neuromodulators; clean	GNR, <i>S. aureus</i> , with increasing reports of anaerobic, and fungal organisms	All cases	Aminoglycoside and 1 st /2 nd gen. Cephalosporin <i>or</i> Aztreonam [¥] and 1 st /2 nd gen. Cephalosporin <i>or</i> Aminoglycoside and Vancomycin ^ℵ <i>or</i> Aztreonam [¥] and Vancomycin ^ℵ	Aminopenicillin <i>or</i> β-lactamase inhibitor (including Ampicillin/Sulbactam Ticarcillin, Tazobactam)	≤24 hours
Inguinal and scrotal cases; e.g. radical orchiectomy, vasectomy, reversals, varicocelectomy, hydrocelectomy, etc.; clean	GNR, <i>S. aureus</i>	Of increased risk; all cases	Cefazolin	Ampicillin/Sulbactam	Single dose
Vaginal surgery, female incontinence, e.g. urethral sling procedures, fistulae repair, urethral diverticulectomy, etc.; clean-contaminated	<i>S. aureus</i> , streptococci, enterococci, vaginal anaerobes; skin	All	2 nd gen. Cephalosporin (e.g., Cefoxitin, Cefotetan) provides better anaerobic coverage than 1 st gen. cephalosporins; however, Cefazolin is equivalent coverage for the vaginal anaerobes in sling procedures	Ampicillin/Sulbactam and Aminoglycoside <i>or</i> Aztreonam [¥] and Metronidazole <i>or</i> Aztreonam [¥] and Clindamycin <i>or</i> Clindamycin	Single dose

Other:					
Shock-wave lithotripsy; clean	GNR, rarely enterococci; GU pathogens	Only if risk factors	If risks, consider TMP-SMX <i>or</i> 1 st gen. Cephalosporin (Cefazolin) <i>or</i> 2 nd gen. Cephalosporin (Cefuroxime) <i>or</i> Aminopenicillin combined with a β- lactamase inhibitor and Metronidazole	1 st /2 nd gen. Cephalosporin <i>or</i> Amoxicillin/Clavulanate <i>or</i> Ampicillin and Aminoglycoside <i>or</i> Ampicillin and Aztreonam [‡] <i>or</i> Clindamycin	Single dose
<p>† GU GNR: Common urinary tract organisms are <i>E. coli</i>, <i>Proteus</i> spp, <i>Klebsiella</i> spp, and GPC <i>Enterococcus</i>.</p> <p>‡ See Table “Patient-related factors affecting host response to surgical infections.”</p> <p>§ If urine culture shows no growth prior to the procedure, antimicrobial prophylaxis is not necessary.</p> <p>¶ Or full course of culture-directed antimicrobials for documented infection (which is treatment, not prophylaxis).</p> <p>‡ Aztreonam can be substituted for aminoglycosides in patients with renal insufficiency.</p> <p> Includes transurethral resection of bladder tumor and prostate, and any biopsy, resection, fulguration, foreign body removal, urethral dilation or urethrotomy, or ureteral instrumentation including catheterization or stent placement/removal.</p> <p>**Clindamycin, or aminoglycoside + metronidazole or clindamycin, are general alternatives to penicillins and cephalosporins in patients with penicillin allergy, even when not specifically listed.</p> <p>†† Intestine: Common intestinal organisms include aerobes and anaerobes: <i>E. coli</i>, <i>Klebsiella</i> spp, <i>Enterobacter</i>, <i>Serratia</i> spp, <i>Proteus</i> spp, <i>Enterococcus</i>, and <i>Anaerobes</i>.</p> <p>‡‡ Skin: Common skin organisms are <i>S. aureus</i>, coagulase negative <i>Staphylococcus</i> spp, Group A <i>Streptococcus</i> spp</p> <p>§§ For surgery involving the colorectum, bowel preparation with oral neomycin plus either erythromycin base or metronidazole are added to systemic agents.</p> <p>χ Routine administration of vancomycin for AP is not recommended.⁴³ The antimicrobial spectrum of Vancomycin is less effective against methicillin-sensitive strains of <i>S. aureus</i>.</p>					