Cystitis, pathogen-directed

Pathogen-Specific Therapy - uUTI	
E. coli	1st = Nitrofurantoin, SMX/TMP; 2nd = FQ, Amox/Clav, Amox (last resort)
Staphylococcus saprophyticus	1st = Amox/Clav, Amox; 2nd = FQ, SMX/TMP, TMP, Cephalexin

Pathogen-Specific Therapy - cUTI	
Acinetobacter sp.	1st - Imipenem; 2nd - FQ, Amp/Sulf
Enterobacteriaceae	1st - FQ; 2nd - Ceftazidime, Cefepime, Pip/Tazo, SMX/TMP, Imipenem, Meropenem
MRSA	1st - Vancomycin; 2nd - SMX/TMP, Linezolid
Pseudomonas aeruginosa	1st - Ceftazidime, Cefepime; 2nd - Pip/Tazo, FQ, Imipenem, Meropenem
VRE	1st - Nitrofurantoin (lower UTI only); 2nd - Linezolid, Daptomycin, Ampicillin
Candida albicans	1st - Fluconazole

Pathogen-specific Therapy - Pyelonephritis - OP	
E.coli , including ***Enterobacteriaceae***	1st Line = FQ; 2nd Line = SMX/TMP, Cephalexin, Cefixime, CTR, Gent
Staphylococcus saprophyticus	1st Line = FQ; 2nd Line = Amox/Clav

UTI Treatments in Pregnancy	
Asymptomatic Bacteriuria and Cystitis	* Nitrofurantoin 100mg BID x 5 days - consider alternate near-term in G6PD-deficient mothers d/t theoretical risk of maternal and fetal hemolytic anemia * Cephalexin 500mg PO BID x 3 - 7 days * Cefuroxime 500mg PO BID x 3 - 7 days * Fosfomycin 3gm PO x 1 * SMX-TMP may be considered during 2nd and 3rd trimester - Theoretical risk of neural tube defects during 1st trimester (TMP) - Theoretical risk of kernicterus with near-term use
Group-B Streptococcus	* PCN VK 500mg QID x 3 - 7 days * Amoxicillin 500mg PO TID x 3 - 7 days
Acute Pyelonephritis	* Cefazoin 1gm IV q8hrs until afebrile x 48 hrs, then change to PO to complete 14 days * Ceftriaxone 1gm IV /IM q24hrs until afebrile x 48 hrs, then change to PO to complete 14 days (consider alternative near term due to theoretical kernicterus risk) * Gentamicin 2mgkg IV q8hrs, then change to PO to complete 14 days (for PCN & Cephalosporin allergic pts)
Pathogen-Specific Tx in Pregnancy	
E. coli and other *Enterobacteriaceae*	ABU & Acute Cystitis 1st - Cephalexin, Cefuroxime, Nitrofurantoin 2nd - Ceftriaxone Acute Pyelonephritis 1st - Ceftriaxone, Cefazolin, Cefuroxime 2nd - Ampicillin, Gentamicin, Pip/Tazo
Staphylococcus saprophyticus or Group B beta-hemolytic *Streptococcus*	ABU & Acute Cystitis 1st - Amox/Clavulanate, Amoxicillin 2nd - Cephalexin, Nitrofurantoin Acute Pyelonephritis 1st - Amp/Sulbactam 2nd - Cefoxitin

Pearls
E. coli resistance is increasing to SMX/TMP and FQ
ESBL-producers are often susceptible to fosfomycin or ertapenem
IF failure on 3-day course, culture and Tx for 2 weeks
Pregnancy
- 7-day Tx recommended
- Do not use sulfonamides near term (2 weeks before EDC) --> incr risk of kernicterus
- Do not use nitrofurantoin in last trimester of pregnancy nor during labor for fear of causing hemolytic anemia in the newborn
- Avoid fluoroquinolones throughout pregnancy
Phenazopyridine 200mg PO TID x 2 days to reduce sx
Duration
- For CAUTI, tx for 7 days if prompt resolution of sx
- For CAUTI, tx for 10 - 14 days if delayed response