Pediatric Hematology-Oncology Antimicrobial Prophylaxis Guideline

Antibacterial prophylaxis

Antimicrobial	Dosing	Patient population	When this should be used	Drug monitoring	Adverse reactions	Dosage Forms
Levofloxacin	>6months to <5 years: 10 mg/kg/dose IV/PO BID ≥5 years: 10 mg/kg PO daily (maximum 500 mg) IV/PO (equivalent bioavailability) -Take 2 hours before or 6 hours after calcium, aluminum, vitamins and other divalent cations -With liquid formulation, take 1 hour before or 2 hours after meals	• AML • Relapsed ALL • ALL in patients with Trisomy 21 • Infant ALL • Patients on clinical trial where it is strongly suggested to utilize antimicrobial prophylaxis	Start when ANC falls below 200, continue until ANC is >200 or patient develops fever (then change to cefepime)	If simultaneously receiving -azoles, $5HT_3$ antagonists, Tyrosine Kinase Inhibitors or other QT prolonging agent, should have baseline then weekly EKG	Tendonitis, Clostridium difficile infection, hepatotoxicity, prolonged QT, hypoglycemia, photosensitivity, seizures, peripheral neuropathy	IV, Tablets, Oral suspension
Vancomycin	10 mg/kg (Max: 125 mg) PO daily	• Pediatric hematology/oncology patients (regardless of ANC) with prior history of *Clostridium difficile* infection in the last 24 months	Start daily for duration of broad spectrum antibiotics and continue for 5 days after last antibiotic dose	N/A	GI side effects, hypokalemia, headache, back pain, peripheral edema, hypotension, nephrotoxicity (Side effects listed are more likely seen in four times daily treatment regimen)	Capsule, Oral Solution

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Antifungal prophylaxis

Antimicrobial	Dosing	Patient population	When this should be used	Drug monitoring	Adverse reactions	Dosage Forms
Voriconazole	<50kg: 9 mg/kg/dose PO q12h ≥50 kg: 200-300 mg PO q12h -Take 1 hour before or 1 hour after a meal - Adjust based on trough	• AML • Relapsed ALL • ALL in patients with Trisomy 21 • Infant ALL • Patients on clinical trial where it is strongly suggested to utilize antimicrobial prophylaxis	- **AML patients:** Start post anthracycline and gemtuzumab if applicable - **Relapsed/Infant ALL, patients on clinical trial and Trisomy 21 ALL patients:** Should be held 48-72 hours before and 24 hours after receiving vincristine and/or other chemotherapy metabolized via CYP3A4 - Should be used throughout intensive chemotherapy	- Trough after 4 days (goal: 2-5 µg/mL - If simultaneously receiving levofloxacin, $5HT_3$ antagonists, Tyrosine Kinase Inhibitors or other QT prolonging agent, should have weekly EKG - Monitor LFTs, renal function at baseline and periodically	Hepatotoxicity, prolonged QT, photosensitivity, rash, hallucinations (often visual), hyperglycemia	IV, Tablets, Oral Suspension
Posaconazole	Young children: Avoid suspension due to poor absorption If able to swallow delayed release tablets 10 mg/kg once daily (rounded to nearest 100 mg tablet) Adolescents ≥13 years: Tablet (delayed release): 300 mg PO q12h on day 1, then once daily	• AML • Relapsed ALL • ALL in patients with Trisomy 21 • Infant ALL • Patients on clinical trial where it is strongly suggested to utilize antimicrobial prophylaxis	- **AML patients:** Start post anthracycline and gemtuzumab if applicable - **Relapsed/Infant ALL, patients on clinical trial and Trisomy 21 ALL patients:** Should be held 48-72 hours before and 24 hours after receiving vincristine and/or other chemotherapy metabolized via CYP3A4 - Should be used throughout intensive chemotherapy	- Trough after 7 days (goal: 1-2 mcg/mL) - If simultaneously receiving levofloxacin, $5HT_3$ antagonist, Tyrosine Kinase Inhibitors or other QT prolonging agent, should have baseline then weekly EKG - Monitor LFTs, electrolytes, renal function at baseline and periodically	Hepatotoxicity, hypertension, prolonged QT, pruritis, thrombocytopenia, hypokalemia, hyperglycemia	Delayed Release Tablets, Oral Suspension (avoid), IV formulation non-formulary (Need ID approval)

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Antifungal prophylaxis (Cont.)

Antimicrobial	Dosing	Patient population	When this should be used	Drug monitoring	Adverse reactions	Dosage Forms
Fluconazole	6-12 mg/kg PO daily (max: 400 mg)	• Relapsed ALL • ALL in patients with Trisomy 21 • Infant ALL • Patients on clinical trial where it is strongly suggested to utilize antimicrobial prophylaxis	- **Relapsed/Infant ALL, patients on clinical trial and Trisomy 21 ALL patients:** Should be held 24-48 hours before and 24 hours after receiving vincristine and/or other chemotherapy metabolized via CYP3A4 - Should be used throughout intensive chemotherapy - **Do not use in AML patients**	- If simultaneously receiving levofloxacin, $5HT_3$ antagonist, Tyrosine Kinase Inhibitors or other QT prolonging agent, should have baseline then weekly EKG - Monitor LFTs, electrolytes, renal function at baseline and periodically	Elevated LFTs, renal, prolonged QT, rash, thrombocytopenia, neutropenia, hypokalemia	IV, Tablets, Oral Suspension
Micafungin	1-3 mg/kg IV daily (max: 50 mg)	• Relapsed ALL • ALL in patients with Trisomy 21 • Infant ALL • Patients on clinical trial where it is strongly suggested to utilize antimicrobial prophylaxis	- Prophylaxis while patients are receiving vincristine	CBC, LFTs, renal function at baseline and periodically	Elevated LFTs, renal dysfunction (rare), infusion reactions	IV only

Pediatric Hematology-Oncology Antimicrobial Prophylaxis Guideline

PJP prophylaxis

Antimicrobial	Dosing	Patient population	When this should be used	Drug monitoring	Adverse reactions	Dosage Form
Trimethoprim –sulfa-methoxazole (TMP-SMX, Bactrim, Septra) *PREFERRED*	5-10 mg/kg/day (TMP component) PO divided BID for 2 days/week (max 320 mg TMP/day)	• All patients undergoing chemotherapy	Once chemotherapy initiated	-none recommended	Rash, anaphylaxis, cytopenias, renal dysfunction	Tablets, Oral suspension, IV (Avoid due to short stability and large fluid volume)
Pentamidine	(≥2 years): 4 mg/kg/dose IV q 4 weeks (max 300 mg)		If unable to receive TMP-SMX	-Routine monitoring of renal, hepatic function, CBC, electrolytes -Consider EKG if on other QT prolonging agents	Renal dysfunction, hypotension (if infused rapidly), QT prolongation, hypo- or hyperglycemia	IV Nebulization (Not available at UCDMC)
Dapsone (use with caution if sulfa allergy or G6PD)	2 mg/kg PO daily (max 100 mg) or 4 mg/kg PO weekly		If unable to receive TMP-SMX or Pentamidine	-CBC, reticulocyte count weekly for first month, then monthly. -Check G6PD prior to initiation. -Baseline and periodic LFTs.	Anemia, hemolysis, leukopenia, rash, jaundice, hepatitis, nephrotic syndrome	Tablets, Compounded oral suspension
Atovaquone	1-3 months: 30 mg/kg PO daily 4mo-2y: 45 mg/kg PO daily 2y-12y: 30 mg/kg PO daily (max 1500 mg) >12y: 1500 mg PO daily Administer with food.		If unable to receive TMP-SMX, Dapsone, Pentamidine	Monitor LFTs at baseline and periodically	Rash, headache, hepatotoxicity, GI side effects	Oral suspension

Antiviral prophylaxis

Antimicrobial	Dosing	Patient population	When this should be used	Drug monitoring	Adverse reactions	Dosage Forms
Acyclovir	IV: 5-10 mg/kg/dose q8h (administer with IV fluids to avoid renal dysfxn) PO: 20 mg/kg/dose PO BID (max 400 mg PO BID)	• Patient with recurrent HSV stomatitis	During periods of neutropenia	-Renal function, CBC baseline	Renal dysfunction, cytopenias	IV, Tablets, Oral Suspension
Valacyclovir	Children ≥ 3months: 20 mg/kg/dose PO BID (max 1000 mg PO BID)	• Patient with recurrent HSV stomatitis	During periods of neutropenia	-Renal function, CBC baseline	Renal dysfunction, cytopenias	Tablets, Compounded oral Suspension