

Characteristics of Commonly-Used Second-Line Drugs for Drug Resistant TB

For complete information on these and other drugs for MDR-TB, consult medication package inserts or medication fact sheets in Drug-Resistant Tuberculosis: A Survival Guide for Clinicians, 3rd edition available at: currytbcenter.ucsf.edu/product/view/drugresistant-tuberculosis-a-survival-guide-for-clinicians-3rd-edition

Drug	Standard Adult Dosing*	Considerations	Side Effects
Bedaquiline	400 mg once daily for 14 consecutive days; then 200 mg 3 times/wk for 22 wks (may give longer); 26 wks total duration as part of BPaL regimen	CNS penetration unproven; can be safely used with moderate chronic kidney disease (CKD) or moderate liver disease; give with meal to increase bio-availability	QTc prolongation, decreased appetite, nausea, hepatitis, headaches, arthralgias, elevated amylases, vivid dreams
Moxifloxacin	400 mg once daily, PO or IV	Good CNS penetration.	GI upset, dizziness, hypersensitivity, photosensitivity, headaches, arthralgias, tendonitis, tendon rupture (rare), CNS irritability, QTc prolongation, thrush, peripheral neuropathy, elevated liver enzymes (rare hepatotoxicity with moxifloxacin)
Levofloxacin	750-1,000 mg once daily, PO or IV	Good CNS penetration; adjust dose with creatine clearance < 30; avoid caffeine, milk-based products, antacids, or mineral supplements within 2 hrs of medication	Peripheral and optic neuropathy (reversible with early recognition), anemia, thrombocytopenia, neutropenia, headache, GI upset, rash, serotonin syndrome, lactic acidosis, acute pancreatitis, black hairy tongue
Linezolid	600 mg once daily, PO or IV	Good CNS penetration; trough < 2 µg/ml is associated with lower toxicity	Hepatotoxicity, myelosuppression, peripheral and optic neuropathy, lactic acidosis, QTc prolongation, pancreatitis <i>[side effects are for entire BPaL regimen]</i>
Pretomanid (As part of BPaL or BPaLM regimen)	200 mg once daily for 26 wks	No dose adjustment in patients with mild to moderate renal impairment; use with caution with severe renal impairment; should be taken with food	GI upset, dizziness, insomnia, upper abdominal pain, QTc prolongation
Delamanid	100 mg twice daily for 24 wks (longer is possible)	CNS penetration unknown; can be safely used with moderate CKD or moderate liver disease; should be taken with food	Hyperpigmentation, GI complaints, retinopathy, dry skin, ichthyosis, QTc prolongation; note – some patients may become depressed due to skin changes
Clofazamine	100 mg once daily	Skin darkening and photosensitivity can be limited by early use of sunscreen and lubricants; patients should be advised to minimize sun exposure	CNS toxicity (psychosis, depression, suicidal ideation, seizures), insomnia, unusual skin reaction
Cycloserine	250 mg twice daily or 500 mg once daily	Avoid in patients with history of seizures/psychosis or ETOH abuse; check level before increasing dose >500 mg daily; adjust dose with creatinine clearance < 30; some physicians use pyridoxine 50-100 mg daily	Polyarthralgia (non-gouty), asymptomatic hyperuricemia, hepatotoxicity, GI upset, Rare: acute gout, usually in those with pre-existing gout
Pyrazinamide	Standard dosing: 25-35 mg/kg once daily	Adjust dose and/or interval with creatinine clearance < 30, avoid with clinical history of gout	Ototoxicity - auditory/vestibular (irreversible), renal toxicity, pain at injection site
Amikacin	≤ 59 yrs: initial dosing: 15mg/kg/day (in a single dose IV or IM) 5 days/wk After conversion: 20-25 mg/kg 2-3 days/wk	Avoid these, if at all possible; adjust dose and/or interval with CKD	Ototoxicity - auditory/vestibular (irreversible), renal toxicity, giddiness, perioral numbness, hypersensitivity, pain at injection site
Streptomycin	>59 yrs: 10 mg/kg (max 750 mg) IV or IM 5 days/wk or 2-3 days/wk after initial period	Increase dose gradually; causes hypothyroidism in some patients; Most patients do not tolerate > 500 mg some physicians use pyridoxine 50-100 mg daily; take with food	GI upset, hypothyroidism, metallic taste, hepatitis, headache, hypersensitivity, alopecia, gynecomastia, menstrual irregularity, acne, hypoglycemia, photosensitivity, peripheral neuropathy
Ethionamide	250 mg 2 times daily or 500 mg once daily	Adjust dose with advanced CKD	GI upset, rarely increased liver enzymes
Meropenem	1-2 g every 8 hours IV with 125 mg clavulanate {given as amoxicillin-clavulanate) with each dose		

*PO unless otherwise noted. Most 1st and 2nd line TB medications are best taken on an empty stomach or with a small snack; fatty foods should be avoided.