



# Standard Treatment Workflow (STW) Guidelines for DRUG SENSITIVE-TB TREATMENT AS PER NTEP

- For all TB patients whether being treated in public or private sector, clinicians should follow Standards for TB care in India guidelines
- In NTEP, the principle of TB treatment (except confirmed DR-TB) is to administer daily FDC of 1st line ATT in appropriate weight bands, under direct observation
- For patients being treated in private sector, FDCs may be provided by NTEP whenever requested

## Regimen for Drug-Sensitive TB cases: 2HRZE/4HRE

- This regimen is for H & R sensitive TB cases and cases where the sensitivity pattern can not be established
- Treatment is given in two phases:**
  - Intensive phase consists of 8 weeks (56 doses) of isoniazid (H), rifampicin (R), pyrazinamide (Z) and ethambutol (E) given under direct observation in daily dosages as per weight band categories
  - Continuation phase consists of 16 weeks (112 doses) of isoniazid, rifampicin and ethambutol in daily dosages. Only pyrazinamide will be stopped in the continuation phase. The CP needs to be extended upto 24 weeks in certain forms of TB like CNS TB, Skeletal TB. In disseminated TB or slow response treating physician may extend on case to case basis.

Regimen for DS-TB	IP	CP
Drugs	2 HRZE	4 HRE
Doses	56	112

## ADULT TB TREATMENT

Drug dosages for first-line anti- TB drugs		Special considerations for Adult TB Meningitis	Special considerations for Adult abdominal TB
Drugs	Doses		
Isoniazid (H)	5 mg/kg daily (4 to 6 mg/kg)	<ul style="list-style-type: none"> <li>Intensive Phase: 2 months of RHZE or RHZS</li> <li>Continuation phase: 3 drugs-RHE for at least 10 months*</li> <li>STEROIDS                             <ul style="list-style-type: none"> <li>Preferably Dexamethasone 0.4 mg/kg/day intravenously in 3-4 divided doses during hospital stay</li> <li>If not feasible, give oral Dexamethasone 0.4 mg/kg/day in divided doses or oral Prednisolone 1 mg/kg/day in a single morning dose</li> <li>Discharge on oral steroids on tapering doses for total duration of 8-12 weeks</li> <li>Regular follow up is essential every month for at least first 3 months &amp; can be increased thereafter till treatment is stopped</li> <li>Monitor liver function tests &amp; any other features of drug toxicity</li> <li>Observe for clinical improvement or any deterioration</li> <li>Closely observe for development of any complications</li> </ul> </li> </ul> <p>*treatment duration may be increased in some cases as per the clinician decision</p>	<ul style="list-style-type: none"> <li>Extend duration of treatment in cases of inadequate response</li> <li>Refer for surgical management for complications [intestinal obstruction (due to strictures), perforation]</li> <li>Consider endoscopic dilatation for treatment for accessible strictures</li> <li>Refer for biliary drainage in case of Jaundice due to biliary obstruction (hepatobiliary obstruction/pancreatic TB)</li> </ul>
Rifampicin (R)	10 mg/kg daily (8 to 12 mg/kg)		
Pyrazinamide (Z)	25 mg/kg daily (20 to 30 mg/kg)		
Ethambutol (E)	15 mg/kg daily (12 to 18 mg/kg)		
Streptomycin (S)*	15 mg/kg daily (15 to 20 mg/kg)		
*Streptomycin is administered only in certain situations, like TB meningitis or if any first line drug need to be replaced due to ADR as per weight of the patient			
Pyridoxine may be given at a dosage of 10 mg per day			
Weight category	Number of tablets (FDCs)		Special considerations for intra-ocular TB
	Intensive Phase H: 75mg; R: 150 mg; Z: 400 mg; E: 275 mg)	Continuation Phase H: 75mg; R: 150 mg; E: 275 mg)	
25 to 34 kg	2	2	<ul style="list-style-type: none"> <li><b>ATT</b> : 2 months of RHEZ + 7 months of RH depending on clinical response &amp; side effects to treatment</li> <li>Add pyridoxine 10 mg/day</li> <li><b>Corticosteroids</b> : Topical steroids eye drops for severe/anterior chamber inflammation</li> <li>For treatment in children refer to paediatrician</li> <li>Systemic corticosteroids for severe inflammation in consultation with Uveitis expert</li> </ul>
35 to 49 kg	3	3	
50 to 64 kg	4	4	
65 to 75 kg	5	5	
> 75 kg	6	6	
<ul style="list-style-type: none"> <li>Fixed Dose Combinations (FDCs) refer to products containing two or more active ingredients in fixed doses, used for a particular indication(s)</li> <li>In NTEP, for Adults: 4-FDC (given in IP) consists of HRZE and 3-FDC (given in CP) consists of HRE</li> <li>During treatment if weight of the patient increases by &gt; 5 kg and crosses the next weight band then patient should be given the next higher weight band FDC drugs</li> </ul>			

## PAEDIATRIC TB TREATMENT

Weight Band	Number of tablets (dispersible FDCs)				Special considerations for paediatric osteoarticular TB	
	Intensive phase		Continuation phase			
	HRZ	E	HR	E		
4-7 kg	1	1	1	1	<ul style="list-style-type: none"> <li><b>Regimen</b> : 2HRZE + 10HRE</li> <li>Follow up every month during treatment &amp; subsequently every 3 months: Potts spine with X-ray or MRI &amp; Tubercular dactylitis or arthritis with plain X-ray</li> </ul>	
8-11 kg	2	2	2	2		
12-15 kg	3	3	3	3		
16-24 kg	4	4	4	4		
25-29 kg	3 + 1A *	3	3 + 1A *	3		
30-39 kg	2 + 2A *	2	2 + 2A *	2	<ul style="list-style-type: none"> <li><b>Special considerations for paediatric Abdominal TB</b></li> <li>Steroids- Not recommended</li> <li>Supportive treatment- Management of SAM/Malnutrition as per national guidelines</li> <li>Surgical treatment:                             <ul style="list-style-type: none"> <li>Acute intestinal obstruction, Bowel perforation</li> <li>Persistence of obstructive symptoms despite conservative management &amp; ATT</li> </ul> </li> <li>DO NOT start Empirical ATT with isolated:                             <ul style="list-style-type: none"> <li>Recurrent/Chronic abdominal pain without danger signs</li> <li>Chronic diarrhoea without proper evaluation</li> </ul> </li> </ul>	
<ul style="list-style-type: none"> <li>*A=Adult FDC (HRZE = 75/150/400/275; HRE = 75/150/275). It is added in higher weight band categories i.e. &gt; 25 kg as these children may be able to swallow tablets</li> <li>Pyridoxine may be given at a dosage of 10 mg per day</li> </ul>						
Drug dosages for first-line anti- TB drugs		Special considerations for paediatric TB meningitis				
Isoniazid (H)	7-15 mg/kg (maximum dose 300 mg/day)	<ul style="list-style-type: none"> <li><b>ATT for paediatric TB Meningitis</b> <ul style="list-style-type: none"> <li>&gt; 2 HRZE and 10 HRE (in appropriate doses)</li> <li><b>Corticosteroids</b> <ul style="list-style-type: none"> <li>Prednisolone 2 mg/kg/day for 4 weeks &amp; then taper over 4 weeks*</li> <li>Slower taper needed in some patients</li> </ul> </li> </ul> </li> </ul> <p>*Equivalent dose of another steroid formulation may be used either injectable/oral</p>				
Rifampicin (R)	10-20 mg/kg (maximum dose 600 mg/day)					
Pyrazinamide (Z)	30-40 mg/kg (maximum 2000 mg/day)					
Ethambutol (E)	15-25 mg/kg (maximum 1500 mg/day)					

## ABBREVIATIONS

<b>ADR:</b> Adverse drug reaction	<b>DR-TB:</b> Drug resistant Tuberculosis	<b>H:</b> Isoniazid	<b>R:</b> Rifampicin
<b>ATT:</b> Anti-Tubercular treatment	<b>DS-TB:</b> Drug sensitive Tuberculosis	<b>IP:</b> Intensive phase	<b>S:</b> Streptomycin
<b>CNS:</b> Central Nervous system	<b>E:</b> Ethambutol	<b>MRI:</b> Magnetic Resonance imaging TB: Tuberculosis	<b>SAM:</b> Severe acute malnutrition
<b>CP:</b> Continuation phase	<b>FDC:</b> Fixed dose combination	<b>NTEP:</b> National TB Elimination Programme	<b>Z:</b> Pyrazinamide

## REFERENCES

- National TB Elimination Programme, Central TB Division. Training modules for programme managers & Medical officers. Ministry of Health and Family Welfare, Government of India accessed at <https://tbcindia.gov.in/index1.php?lang=1&level=1&sublinkid=5465&lid=3540> on 24 February, 2022.

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