UPDATES FROM THE



Soumya Swaminathan

National Institute for Research in Tuberculosis of India

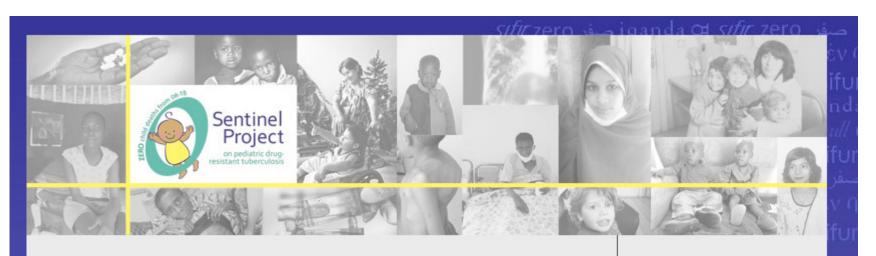


... is a network of researchers, caregivers, and advocates who share a vision of a world where no child dies of this preventable and curable disease. We collaborate to raise the visibility of this vulnerable population, and to share evidence and resources that can increase children's access to prompt and effective treatment.



- Field Guide
- Dosing Chart
- Workshops
- Webinars





> Resources

Please follow these links to view resources developed by the Sentinel Project Network:

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Drug-Resistant TB

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> Treatment Guidance



- 1) Second Edition of Management of Multidrug-Resistant Tuberculosis in Children: A Field Guide. Boston, USA: The Sentinel Project for Pediatric Drug Resistant Tuberculosis; July 2014. Available here.
- 2) Seddon JA, Furin JJ, Gale M, Del Castillo Barrientos H, Hurtado RM, Amanullah F, Ford N, Starke JR, Schaaf HS. Caring for children with drug-resistant tuberculosis: Practice-based recommendations. Am J Respir Crit Care Med 2012; 186(10):953-964. Available at the *American Journal of Respiratory and Critical Care Medicine*.

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Management of Multidrug-Resistant Tuberculosis in Children: A Field Guide





Second Edition: July, 2014





Concise Clinical Review

Caring for Children with Drug-Resistant Tuberculosis

Practice-based Recommendations

James A. Seddon^{1,2}, Jennifer J. Furin³, Marianne Gale⁴, Hernan Del Castillo Barrientos^{5,6}, Rocío M. Hurtado^{7,8,9}, Farhana Amanullah¹⁰, Nathan Ford¹¹, Jeffrey R. Starke¹², and H. Simon Schaaf^{1,13}; on behalf of the Sentinel Project on Pediatric Drug-Resistant Tuberculosis

MDR-TB Weight-Based Dosing Chart for Children

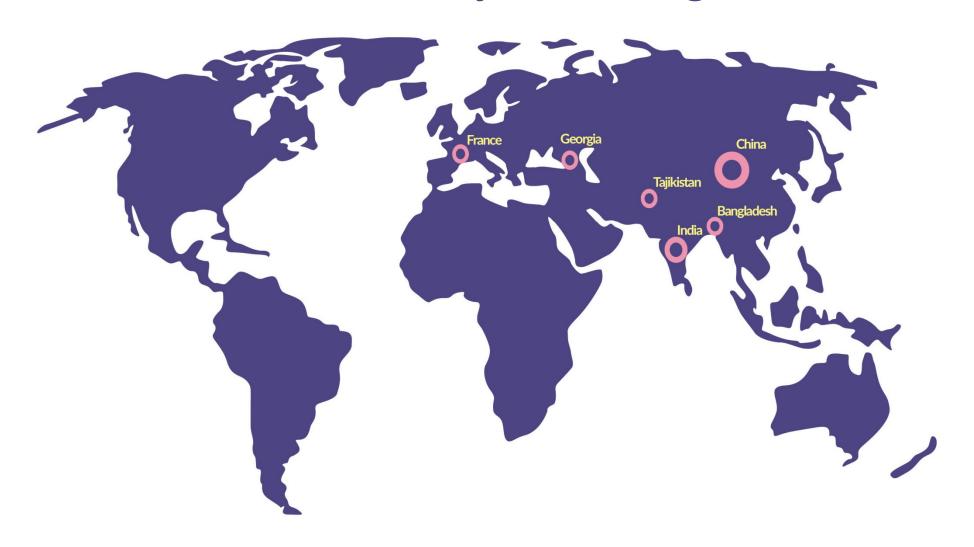
	Group 1: Oral first-line anti-TB drugs			Group 2:		Group 3: Fluoroquinolones		Group 4: Oral bacteriostatis agents				Group 5:						
Target Dose	Ethan (15-25		Pyrazii (30-40		injectable anti-TB drugs (injectable	Levofle (15-20		Moxifl (7.5-10	oxacin mg/kg)	Ofloxacin (15-20 mg/kg)	Cyclos Terizi (15-20		(150-200	AS 0 mg/kg)	Protionamide Ethionamide (15-20 mg/kg)	Anti-TB drugs with unclear efficacy or	Isoniazid High Dose (15-20 mg/kg)	Target Dose
Available Formulations	100 mg tablet	Suspend 400mg tab in 8 mi. of water for a 50 mg/mi. suspension	400 mg tablet	500 mg tablet	agents or parenteral agents)	250 mg tablet	25 mg/mil. auspension	400 mg tablet	20 mg/mL suspension	200 mg tablet	250 mg capaule	1 capsule in 10 mL water	Daily	Twice Daily	250 mg tablet	unclear role in MDR-TB treatment	100 mg tablet	Available Formulation
Wt (kg)	Consul	t with a	cliniciar	exper	ienced i	n pediat	ric MDF	R-TB pr	escribin	g for ne	onates	(<28 da	ys of ag	e) and	infants	weighin	g <3 kg	Wt (kg)
3-3.9 4-4.9	-	2 mL	.25 tab	.25 tab	To illustrate done palculation, take	.25 tab	2.5 mL		1.5 mL 2 mL		.25 cap	2.5 mL	500 mg	250 mg	.25 tab	Group 5 drugs	.5 tab	3-0.9 4-6.9
643	1 tab			1000000	the example of a child that weight 6.9 kg.	.5 tab	5.0 mL		2.5 mL	.5 tab	.5 cap	5 mL			.5 tab	recommended by the WHO for routine use in	1 tab	64.9
7-7.9			.5 tab	.5 tab	Both the low and high doses for the child's	.5 140	3.0 IIIL	not recommended	2.5 1112		.5 (4)	21112	1500 mg	750 mg	.5 180	MDR-TD treatment because their	1 130	7-7.9
949	2 tabs	4 mL		.5 120	weight are calculated.	.75 tab	7.5 mL				.75 cap	7.5 mL	2000 mg	1000 mg	.75 tab	contribution to the efficacy of MDR regimens is unclear.	2 tabs	9-9.9
12-12.9			1 tab		Low dose: 15 mg/kg x 6.9 kg = 100 mg High dose: 20				5 mL	1 tab						Their role in pediatric MDR- TB treatment is even less clear.	8	12-12-9
16-16.9	3 tabs	6 mL		1 tab	mg/kg x 6.9 kg = 130 mg A convenient	1 tab	10 mL				1 cap	10 mL	2500 mg	1250 mg	1 tab	Most of these drugs are expensive, and		16-16.9
16-16.9 17-17.9 10-10.9			1.5 tabs		dosing is then chosen between the two numbers. Select a dose				7.5 mL	1.5 tabs			3000 mg	1500 mg		aome require intravenous administration, and/or have severe side effects.	3 tabs	16-16.9 17-17.9 18-18.9
19-19.9 20-20.9 21-21.9					between the two numbers and towards the	1.5 tabs	15 mL		1		1.5 caps	15 mL			1.5 tabs	However, they can be used in cases where		19-19.9 20-20.9 21-21.9
22-02.9 22-02.9 23-03.9	4 tabs	8 mL	2 tabs	1.5 tabs	higher number. In this case, choose: 125 mg per day, single dose.			.5 tab	10 mL	2 tabs			4000 mg	2000 mg		adequate regimens are impossible to design with the medications	4 tabs	22-22.9 22-23.9 24-24.9
25-25.9 26-26.9					Calculate the number of mil to				3				5000 mg	2500 mg		from Groups 1- 4. They should be used in		25-25.9 26-26.9
27-27.9 20-20.9 29-29.9	5 tabs	10 mL	2.5 tabs	2 tabs	draw up in the syringe based on the regimi, concentration of the preparation.	2 tabs	20 mL		12.5 mL	2.5 tabs	2 caps	20 mL	6000 mg	3000 mg	2 tabs	consultation with an expert in the beatment of DR-TD.	5 tabs	27-27.9 28-28.9 29-29.9
				The						garding opti			n.					



Group 2	Steptomycin	Amikadin	Kanamydin	Capreomycin	
Daily Dose	20-60 mg/kg once daily	15-20 mg/kg once daily	15-20 mg/kg once daily	15-20 mg/kg once daily	
Maximum Daily Dose	1000 mg	1000 mg	1000 mg	1000 mg	

Group 6	Ciofazimine (CFZ)	Amosicillin-clavulanate (AMX-CLV)	Meropenem (MPN)	Linezolid (LZD)	Clarithromycin (CLR)
Daily Dose	2-3 mg/kg once daily; if the child is <25kg give 100mg every second day	80 mg/kg in two divided doese based on the amoulcillin component	20-40 mg/kg IV every 8 hours	10 mg/kg dose twice daily for children < 10 years of age 300 mg daily for children >10 years of age (also give vitamin Bil)	7.5 mg/kg tuke dally
Maximum Daily Dose	200 mg	4000 mg amoxicillin and 500 mg clavulanate	6000 mg	600 mg	1000 mg

Sentinel Project Trainings



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Workshops

- Chennai 17-19 June 2013
- Dhaka 15-17 July, 2013
- Paris 31 October 2013
- Georgia 3 July 2014
- Dushanbe 4-8 August 2014
- China 13-17 October 2014

Webinars

Date	Topic
14 Mar 2014	Demonstration of gastric aspiration technique
25 Apr 2014	Regimen design and dosing: a case-based discussion
21 May 2014	Household considerations: contact tracing and infection control
6 Jun 2014	Adverse events and adherence
23 Jul 2014	Paediatric DR-TB meningitis: a case-based discussion
19 Sep 2014	Raising voices: advocacy issues
9 Oct 2014	What's in a number? Two reports estimating childhood TB cases

Case registry for childhood DR-TB

- Under development, core data set defined
- Designed to capture information on how children with DR-TB are being diagnosed and treated
 - Diagnostic criteria
 - Baseline clinical and laboratory data
 - Treatment regimens, including regimen changes
 - Adverse events
 - Early treatment response
 - Final treatment outcome
- Electronic interface, freely available
 - Can be used to generate local reports

Date	started:	30 Sept 201	4 He	ight:	Weight:	
Reas	on for regimer	n change (chec	k all that ap	oly):		
	\Box Adjusting \mathfrak{c}	dose for weigh	t	☐ Other:		
	New drug	susceptibility t	est results			
	Adverse re	action to drug				
	Drug	Dose	Route	Frequency		
1.	Pyrazinamide	400 mg	Oral	Once daily	Edit	Stop
2.	PAS	2000 mg	Oral	Twice daily	Edit	Stop
3.	Ethionamide	250 mg	Oral	Once daily	Edit	Stop
4.	Ofloxacin	200 mg	Oral	Once daily	Edit	Stop
5.	Streptomycin	400 mg	Injection	Once daily	Edit	Stop
			Add no	ew drug		
Ster	oids prescribe	d? □ Yes □]No 🗌 Unkr	nown		mple of

REPORT PERIOD: 1 JAN 2015 – 31 DEC 2015

TOTAL PATIENTS ON TREATMENT DURING REPORT PERIOD: 128

TREATMENT STATUS

Started on treatment during report period: 36
Continued treatment through report period: 35
Stopped treatment during report period: 57
Treatment completed: 39 (68%)
Treatment interrupted: 12 (21%)
Patient died during treatment: 6 (11%)

DRUG SUSCEPTIBILITY TESTING

Patients with positive culture: 72
Patients with DST: 70
Monoresistant: 19 (27%)
Polyresistant: 10 (14%)
MDR: 36 (51%)
XDR: 5 (7%)

TREATMENT RESPONSE

	Report submitted	Clinical improvement	Radiological improvement	Microbiological improvement	Treatment failure
By 2 months of treatment	125	21 (17%)	18 (14%)	N/A	N/A
By 6 months of treatment	106	72 (68%)	67 (63%)	N/A	N/A
By 12 months of treatment	77	70 (91%)	68 (88%)	60 (78%)	4 (5%)
By 24 months of treatment	39	37 (95%)	37 (95%)	32 (82%)	2 (5%)

PATIENT CHARACTERISTICS

Female: 72 (56%) HIV-positive:

Example of a possible report

Research Priorities in Childhood DRTB: Survey of Expert Stakeholders

(manuscript submitted for publication)

- 104 respondents in the online survey during July Sep 2013.
- The top-ranked research question was to identify the best combination of existing diagnostic tools for early diagnosis of drugresistant TB in children.
- Treatment-related questions: reasons for poor treatment outcomes, adverse effects of anti-TB drugs, optimal treatment duration and interventions for improving treatment outcomes.
- The prevalence of drug-resistant TB was the highest-ranked question in the Epidemiology area.
- The development type questions ranked highest focused on interventions for optimal diagnosis, treatment and modalities for treatment delivery.
- The predominant discovery type questions focused on new drug evaluation and models for preventive therapy and for preventing new infections.

UPDATES FROM THE



Networking reception on 28thOctober 630pm sponsored by the

Department of Global Health and Social Medicine at Harvard Medical School

and the

National Institute for Research in Tuberculosis of India

with support from

