Tuberculosis Prevention (INH + RPT)

Isoniazid (INH) + Rifapentine (RPT) regimen for the prevention of tuberculosis in children

PREVENTION/TREATMENT

PREVENTION DIAGNOSTIC TREATMENT

INH + RPT for Pediatric TB Prevention

Tuberculosis (TB) infection is generally classified as falling into two main categories: active TB disease, in which patients often demonstrate hallmark symptoms of coughing, fever, and fatigue; and latent TB infection, in which patients do not feel sick or present clinical symptoms. Isoniazid plus rifapentine (INH + RPT) is endorsed by the WHO for children above 2 years old diagnosed with latent TB infection (LTBI) in order to prevent the onset of active TB disease. If available and affordable, INH + RPT is recommended once weekly for a period of 12 weeks. RPT + INH is not yet recommended for children younger than 2 years, people with HIV taking certain antiretroviral therapy (ART), people with suspected INH- or rifampin (RIF)-resistant TB, or pregnant women.

INH + RPT vs. IPT (Isoniazid Preventative Therapy)

A randomized controlled trial in children has shown that 12 weeks of INH + RPT is as effective as 6 or 9 months of isoniazid preventative therapy (IPT). The treatment completion rate for those taking INH + RPT (88.1%) was higher than for those taking only IPT (80.9%). INH + RPT for 12 total doses reduces treatment time by two-thirds and cuts the frequency of doses, making it easier to complete. RPT is not recommended for HIV co-infected patients taking certain classes of ARTs, so IPT is a simpler treatment option and has less likelihood of drug-drug interactions in these patients. Other factors are often taken into consideration when choosing between INH + RPT or IPT, like cost, medication availability, and the prescribing physician. Currently the WHO recommends using INH + RPT or IPT therapies as two of the four available regimens to address LTBIs, not assigning preference to any.

GLOBAL ANNUAL DEATHS ASSOCIATED WITH PEDIATRIC TB:

	NUMBER
Children who acquire TB	at least 1,000,000
Children who die of TB	210,000

Current Use in Low TB Burden Settings

In countries and settings with low TB incidence, it is common practice to treat a positive result on either a tuberculin skin test (TST) or an interferon gamma release assay (IGRA) test with INH + RPT for 12 weeks. After a positive diagnosis on either IGRA or TST, a chest x-ray is often used to confirm if the positive TB test should be attributed to latent TB infection or active pulmonary TB disease. If latent TB, the WHO and US Centers for Disease Control and Prevention (CDC) recommend four common prevention methods for LTBI, including INH + RPT.

Current Use in High TB Burden Settings

The main form of preventative therapy available in countries with high TB burden is IPT, rather than INH + RPT. This is due to a number of factors, including price and availability. Many settings with a high burden of TB are also greatly burdened by HIV infection, so IPT is used simultaneously with HIV treatment. False positives with the tuberculin skin test (TST) can be attributed in some instances to the BCG vaccine in countries where BCG administration is common, especially for children under the age of 10.

REPRESENTATIVE PRODUCTS

IPT Manufacturer Prices

MAKE	MODEL	PROCUREMENT PRICE	TECH	STATUS	NOTES
Generic	Isoniazid 300mg tablets, 28 tablets x 24 blisters	$12.76	Each film-uncoated tablet contains Isoniazid 300mg	Marketed	Stop TB Global Drug Facility referenced price 2016
Generic	Rifapentine 150 mg tablets, Pack of 3 tablets x 8 blisters	$24.00	Contains Rifapentine 150 mg tablets	Marketed	Stop TB Global Drug Facility referenced price 2016

CHARACTERISTICS OF REPRESENTATIVE PRODUCT

	TECHNOLOGY CHARACTERISTICS	OPERATIONAL PARAMETERS	POTENTIAL OPPORTUNITIES FOR IMPROVEMENT
SKILLS REQUIRED	Intended end user	Pediatric clinician, child	Diagnosis of LBTI is essential for INH + RPT to be correctly prescribed. People living with HIV are even more at risk for contracting active TB, so TB screening is essential for that population. Countries with a high burden of TB/HIV co-infection need to screen for TB and HIV together.
	Training required	Minutes	
	Time required per use	Minutes	
ENVIRONMENT/ INFRASTRUCTURE	Power required	None	
	Waste collection	None	
	Complementary technologies required	None	
	Temperature and storage	Store away from heat and light, 20°C-25°C	
	Maintenance	None	
COST	Device cost (approximate)	N/A	
	Cost/course (approximate)	<$3.06/dose	
OTHER	Portability	<10g	
	Regulatory	Widely approved	
	Efficacy	90.8% effective against conversion to active TB	

Sources:

California Department of Public Health. Fact Sheet: 12-dose Isoniazid (INH)/Rifapentine Regimen for Latent TB Infection Treatment. 2016. Available from: https://www.cdph.ca.gov/programs/tb/Documents/TBCB-INH-RIF-LTBI-fact-sheet.pdf

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RTI INTERNATIONAL