REPUBLIC OF KENYA

MINISTRY OF HEALTH

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SIMPLIFIED ALGORITHM FOR THE DIAGNOSIS OF PULMONARY TUBERCULOSIS IN CHILDREN (AGED BELOW 15 YEARS)

NATIONAL TUBERCULOSIS, LEPROSY AND LUNG DISEASE PROGRAM

Is this the first visit to any health facility for the current illness?
(This should raise index of suspicion and avoid more delays)

Does the child have presence of TWO OR MORE of the following symptoms suggestive of TB?
- Cough for >2 weeks[a]
- Persistent fever and/or night sweats >2 weeks
- Weight loss or poor weight gain
- Fatigue (lethargy), reduced playfulness, less active >2 weeks

Enquire for positive contact history with a person with TB or person with a chronic cough?[b]

Box 1

On physical examination does the child have any of the following;
- Abnormal exam (any of the following signs)
  - Increased respiratory rate (0-2 months>60/min,2 -12months >50/min. 1-5yr >40/min., 6 -10yr >30/min. 11-14yr>25/min)
  - Respiratory distress (flairing of alae nasi , chest indrawing)
  - Wheeze or crepitations or asymmetry of findings
  - Oxygen saturation <90% or cyanosis
- Temperature >37.5°
- Check growth curve, weight, compare to previous weight[c]

Box2

Less than two symptoms (Box 1)
Normal exam findings (Box 2)
Then this is not presumptive for TB.

- Consider other diagnosis & manage child appropriately per ETAT/IMCI ("IMNCI) guidelines.
- Ask parent/guardian to bring the child back after three (3) days if there is no improvement for the current illness,
- However, if there is improvement reassess the child after 1 week.
- If there is history of TB contact - evaluate to offer TPT.

On reassessment of the child after 1 week, if symptoms persist, and/or new symptoms develop, do a thorough clinical review as per box 1& 2

Two or more symptoms (Box 1)
Abnormal respiratory exam findings (Box 2)
This is **probable (presumptive) TB**

Investigations for TB available?

No → Where investigations are not available or delay in obtaining result

Yes

- **Chest X-ray**
- **Tuberculin Skin Test (TST/mantoux) or IGRA**

Bacteriological testing
- Sputum (expectorated or induced), gastric aspirate, nasopharyngeal aspirate (Xpert/MtbRif/Truenat/ZN Microscopy/TB culture)
- Stool (for Xpert)
- Urine (TB LAM) for HIV positive only[d] as an add on test

If test is Negative or not done

Bacteriologic Test Positive

CLINICAL DIAGNOSIS OF PTB

Does the child have presence of TWO OR MORE of the following symptoms?
- Cough for >2 weeks[a]
- Persistent fever and/or night sweats >2 weeks
- Weight loss or poor weight gain
- Fatigue (lethargy), reduced playfulness, less active >2 weeks

PLUS
Presence of ANY ONE OF the following ..

- Positive history of contact with a person with TB in the last 12 months[b]
- Abnormal Respiratory exam
- Abnormal CXR suggestive of PTB[e] (where available)
- Positive Mantoux or IGRA test (where available)

Child does not meet criteria for Clinical diagnosis → Give the child antibiotics for 1 week and ask them to return for reassessment after a week → On reassessment of the child after 1 week, if symptoms persist, re-evaluate and send for CXR if not previously done. If CXR is not accessible and symptoms have persisted consider clinical diagnosis of TB

MAKE A CLINICAL DIAGNOSIS OF TB. START TB TREATMENT

THIS IS BACTERIOLOGICALLY CONFIRMED TB. START TB TREATMENT

Additional Information

[a] Respiratory symptoms suggestive of TB include

All ages: Cough > 2 weeks

Younger children:
- Cough
- Or breathing faster than usual
- Or wheeze not responding to salbutamol

NB/all children started on TB treatment should have their HIV status known

[b] History of contact – ask if there is an individual with known TB or chronic cough who:*
- Currently lives in the same household as child (*80% of children have no household contact) or
- Who has visited the home and spent time in the home in contact with child in the preceding 12 months (e.g. relative, maid, driver, worker) or
- For school going children – individual in the same school classroom or dormitory with TB or chronic cough or
- Pre-school children – if they spend time in a day care centre within community or
- All children - if they have spent significant time in a hospital / health facility setting in the preceding months (high risk of exposure to patients with TB in hospital months setting)

Diagnosing DR TB - Clinical considerations
- Diagnosis in children is largely based on clinical and radiological diagnosis
- Consider DR TB diagnosis in a child with a TB diagnosis and contact history as above
- Bacteriologic diagnosis should always be attempted, however, this should not delay treatment initiation

[c] Check weight / poor weight gain includes:
- Weight loss or
- Weight for age Z-score (WAZ) or weight for height z-score (WHZ) below -2. or
- Poor weight gain:-flattening of growth curve (chart) or documented crossing of percentile preceding months or
- Older child (or parent) report they have noticed that they (their child) have lost weight /become thinner in recent weeks to months.

[d] TB LF-LAM Indications

A rapid point-of-care urine dip-stick test
LF-LAM SHOULD NOT be used as an alternative test to mWRD but as an adjunct test to help diagnose TB while awaiting for mWRD results.

Indications include;
- PLHIV adults, adolescents and Children ≥5 years with advanced HIV disease (CD4 cell count <200 cells/mm3 or WHO stage 3 and 4 disease.
- All CLHIV Less than 5 Years
- PLHIV that have danger signs or severe illness (RR.30BPM, Temp>39°c, Heart rate >120BPM, confusion or disorientation, unable to walk unaided)
- PLHIV currently admitted in Hospital and have signs and symptoms of PTB
- PLHIV with signs and symptoms of TB (presumptive TB) in outpatient setting

[e] Abnormalities on Chest X-ray that are suggestive of PTB include:
- Enlarged perihilar or paratracheal lymph nodes (+/- narrowing of airways due to compression by lymph nodes)
- Miliary opacification (diffuse micronodules in lung fields)
- Pleural effusion
- Opacification of a lobe or segment of a lobe
- Cavitation (more frequent in teenagers).

Drug Sensitive Tuberculosis (DSTB) Treatment Regimens for Kenya for Children 10 Years and Below

Note: All children less than 1 year of age will require the 6 month regimen

	Eligibility for 4 month regimen	Eligibility for 6 month regimen	Eligibility for 12 months
Age	>1 year to 10 years	All infants (<12 months) Above 10 years (11 to <15 years)	TB Meningitis & Ostoearticular TB
Type of TB **Indicators of severity**	Non-severe Pulmonary TB Stable enough to be managed as an outpatient at the point of diagnosis No danger signs TB cervical lymph nodes	• Severe Pulmonary TB • All hospitalised patients at point of diagnosis • Severely ill at diagnosis with any danger sign such as; Difficulty in breathing with associated central cyanosis, Grunting, Oxygen saturation <90%, ; Increased respiratory rate (age 0-2months >60/min; 2-12months >50/min; 1-5yr >40/min; 6-10yr >30/min) ; unable to drink/breastfeed; Weak or absent pulse; Coma/convulsing /confusion; Not responding to pain or unresponsive • Extra Pulmonary TB	
Immune status	• HIV negative, No severe acute malnutrition • No other immunosuppressive condition	• HIV positive • Severe acute malnutrition (SAM) • Any immunosuppressed child	
Bacteriologic status	• Bacteriologically negative • Clinically diagnosed	Bacteriologically confirmed	
Treatment regimen	**4 months - 2RHZE / 2RH**	**6 months - 2RHZE / 4RH**	**12 months- 2RHZE / 10RH**

* If the child has known contact with a person with drug-resistant TB , this table does not apply, start the child on treatment as per the drug-resistant TB guidelines

Childhood Drug Resistant TB (DRTB) Treatment Regimen

Resistance pattern	Target group	Regimen (Child friendly formulations)
1. Isoniazid Mono-resistant TB	Children <25 kgs	6RHZE/LFX
2. Poly-drug resistance (PDR) TB	Children <25 kgs	9RHZE/LFX
3. MDR/RR TB	<15 years Non severe dx	6Bdq/Lzd/Lfx/Cs/Cfz 3Lfx/Cs/Cfz
	<15 years Severe dx	6Bdq/Lzd/Lfx/Cs/Cfz 6Lfx/Cs/Cfz
4. Pre-XDR (FQ Res.) TB	<15 years (Children)	6Bdq/Dlm/Cfz/Cs/Lzd 3Dlm/Cfz/Cs
5. XDR TB		Consult national clinical review team
Any Difficult to manage child (DS or DR TB)		Consult sub county and county clinical review teams

*Children (15 years) weighing above 25 Kgs with INH mono resistance or poly drug resistance should be put on the adult dose