

Article

Critical review of tuberculosis diagnosis in children from Papua New Guinea presenting to health facilities in the Torres Strait Islands, Australia

Supplementary Materials

TABLE 1. Keith Edwards Score for Diagnosis of Tuberculosis in Children			
Feature	Score		
	0	1	3
Duration of illness (weeks)	< 2	2-4	> 4
Nutrition (% of weight for age)	> 80	60-80	< 60
Family history of tuberculosis	None	Reported by family	Proven sputum positive
Score for Other Features if Present			
Feature	Score		
Unexplained fever, night sweats, no response to malaria treatment	2		
Positive tuberculin test	3		
Lymph nodes: large, painless, firm, soft sinus in neck/axilla	3		
Malnutrition, not improving after 4 weeks	3		
Central nervous system : change in temperament, fits with or without abnormal cerebrospinal fluid findings	3		
Joint swelling, bone swelling, sinuses	3		
Unexplained abdominal mass, ascites	3		
Angle deformity of spine	4		
A score of 7 or more is indicative of tuberculosis			

Figure S1. Keith Edwards Score for Diagnosis of Tuberculosis in Children 1987¹²

Approach to TB diagnosis in HIV-uninfected child

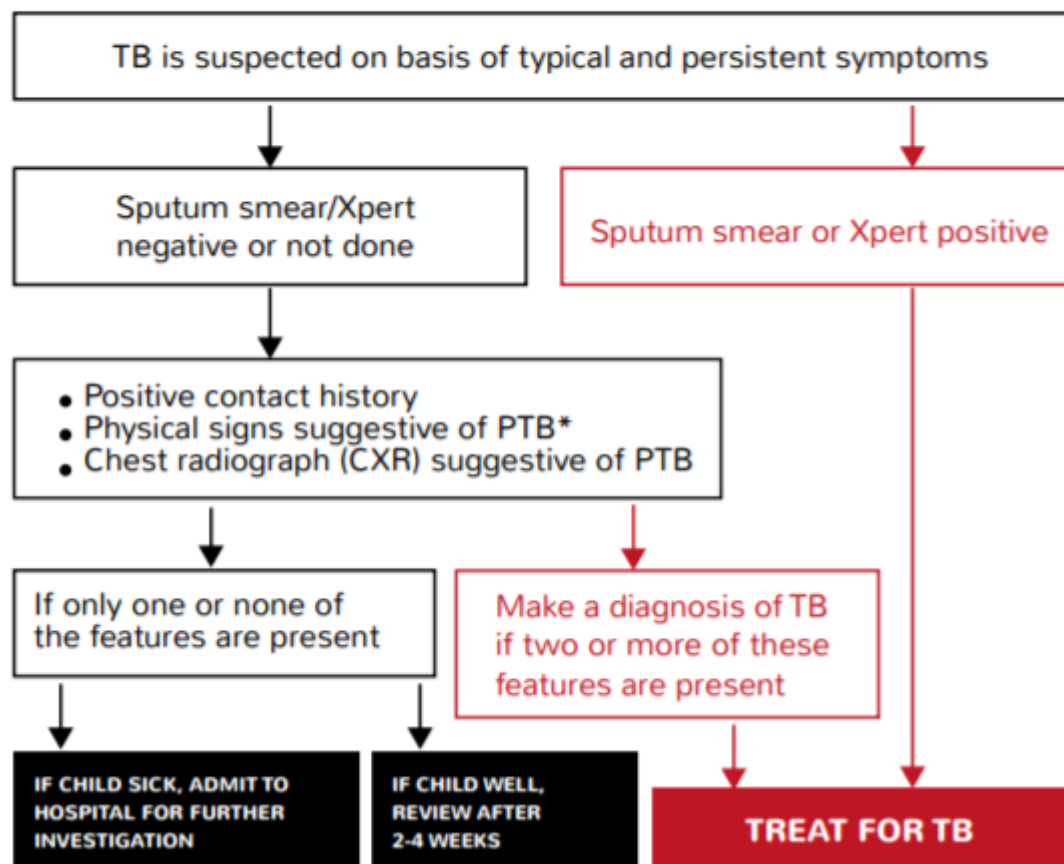


Figure S2. The Union Desk Guide 3rd Edition 2016¹⁰

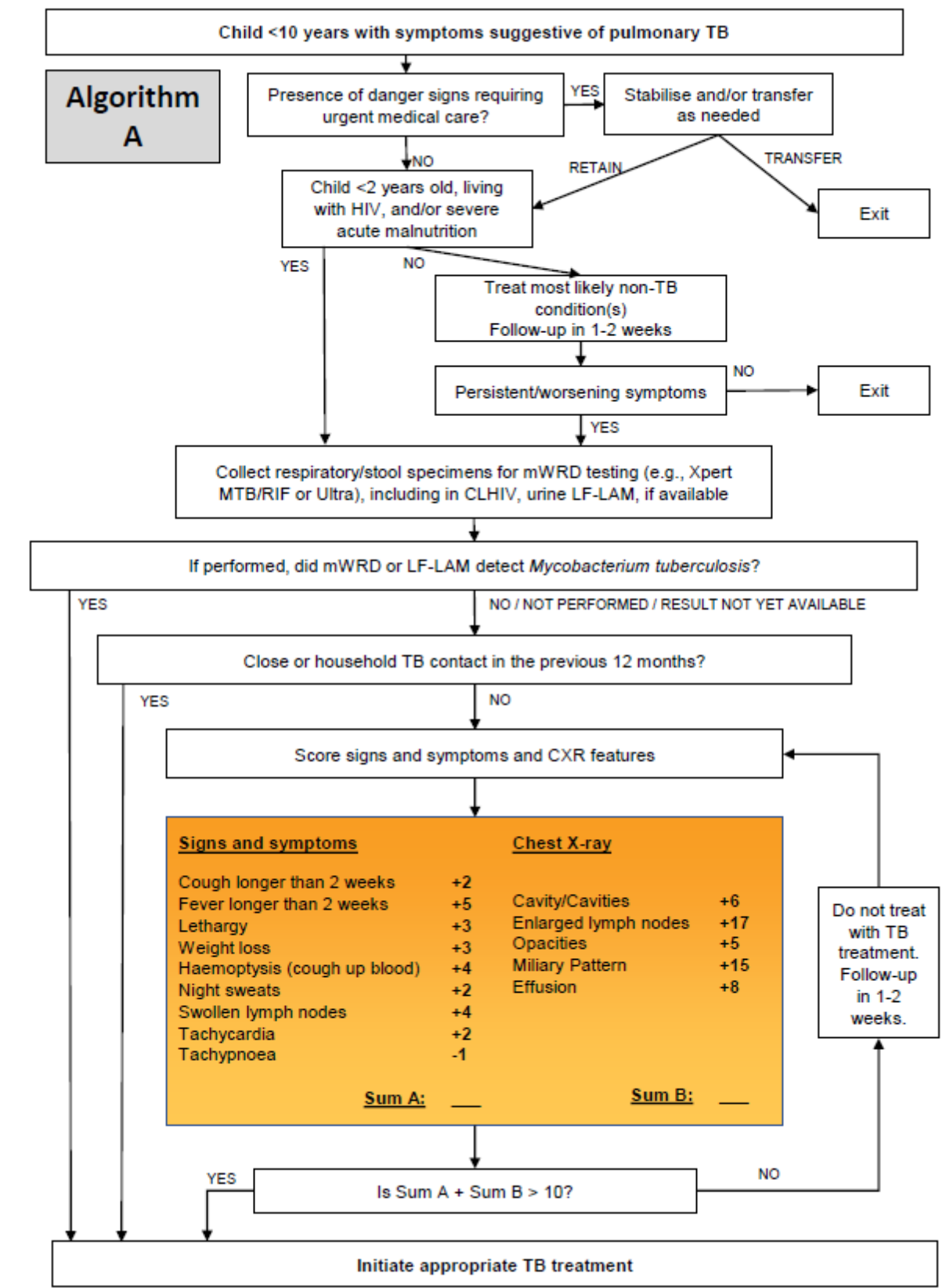


Figure S3. New World Health Organization Paediatric TB algorithm 2022¹³

**Table S1.** Description of established and modified scoring in Keith Edwards TB Score, The Union Desk Guide and the New WHO Algorithm

1

	KEITH EDWARDS TB SCORE (1987)	MODIFIED KEITH EDWARDS TB SCORE	UNION DESK GUIDE (2016)	MODIFIED UNION DESK GUIDE	NEW WHO ALGORITHM (2022)	MODIFIED WHO ALGORITHM
DIAGNOSTIC FEATURE	SCORING SYSTEM (POINTS- BASED)		DIAGNOSTIC GUIDE		OPERATIONAL ALGORITHM	
COUGH	0 - <2 weeks	0 - <2 weeks				
	1 – 2-4 weeks	1 – 2-4 weeks	0 – ≤2 weeks	0 – ≤2 weeks	0 – ≤2 weeks	0 – ≤2 weeks
	3 - >4 weeks	3 - >4 weeks	1 – >2 weeks	1 – >2 weeks	2 – >2 weeks	2 – >2 weeks
FEVER	0 - <2 weeks					
	1 – 2-4 weeks	0 – ≤2 weeks	0 – ≤2 weeks	0 – ≤2 weeks	0 – ≤2 weeks	0 – ≤2 weeks
	3 - >4 weeks	2 – >2 weeks	1 – >2 weeks	1 – >2 weeks	5 – >2 weeks	5 – >2 weeks
WEIGHT LOSS	3 - malnutrition not improving after four weeks of nutritional rehabilitation	Excluded **	0 – not reported 1 – reported	0 – not reported 1 – reported	0 – not reported 3 – reported	0 – not reported 3 – reported
NIGHT SWEATS	0 - <2 weeks					
	1 – 2-4 weeks	0 – ≤2 weeks	0 – ≤2 weeks	0 – ≤2 weeks	0 – not reported	0 – not reported
	3 - >4 weeks	2 – >2 weeks	1 – >2 weeks	1 – >2 weeks	2 – reported	2 – reported
SWOLLEN LYMPH NODES	0 – not present	0 – not present		0 – not present	0 – not reported	0 – not reported
	3 – present	3 – present	Not specified	1 – present	4 – reported	4 – reported
TB CONTACT	0 – no family history of TB	0 – no family history of TB	0 – no TB contact history	0 – no TB contact history	0 – no TB contact history in	0 – no TB contact history in previous 12 months

	KEITH EDWARDS TB SCORE (1987)	MODIFIED KEITH EDWARDS TB SCORE	UNION DESK GUIDE (2016)	MODIFIED UNION DESK GUIDE	NEW WHO ALGORITHM (2022)	MODIFIED WHO ALGORITHM
DIAGNOSTIC FEATURE	SCORING SYSTEM (POINTS- BASED)		DIAGNOSTIC GUIDE		OPERATIONAL ALGORITHM	
	1 – contact with sputum smear negative TB 3 – contact with sputum smear positive TB	3* – known TB contact of either sputum smear positive or negative	1 – TB contact history	1 – TB contact history	previous 12 months 0 – TB contact history in previous 12 months without persistent symptoms Treat - TB contact history in previous 12 months with persistent symptoms	0 – TB contact history in previous 12 months without persistent symptoms Treat - TB contact history in previous 12 months with persistent symptoms
WEIGHT-FOR- AGE (WFA)	0 - >80% expected WFA 1 - 60-80% WFA 3 - <60% WFA	0 - ≥15 th WFA percentile 1 - 3-14 th percentile 3 - < 3 rd percentile	N/A	N/A	Severe Acute Malnutrition – eligible to progress to through until the end of the algorithm	< 3 rd percentile - eligible to progress to through until the end of the algorithm

	KEITH EDWARDS TB SCORE (1987)	MODIFIED KEITH EDWARDS TB SCORE	UNION DESK GUIDE (2016)	MODIFIED UNION DESK GUIDE	NEW WHO ALGORITHM (2022)	MODIFIED WHO ALGORITHM
DIAGNOSTIC FEATURE	SCORING SYSTEM (POINTS- BASED)		DIAGNOSTIC GUIDE		OPERATIONAL ALGORITHM	
HIV	N/A	N/A	N/A***	N/A	HIV positive - eligible to progress to through until the end of the algorithm	HIV positive - eligible to progress to through until the end of the algorithm
TB INFECTION	3 – positive tuberculin skin test	Excluded	N/A	N/A	N/A	N/A
CHEST X-RAY FINDINGS	N/A	N/A	0 – Not suggestive of TB or nor done 1 – Suggestive of TB	0 – Not suggestive of TB or nor done 1 – Suggestive of TB	0 – Not suggestive 6 – Cavities 17 – Enlarged lymph nodes 5 – Opacities 15 – Miliary pattern 8 – Effusion	0 – Not suggestive 6 – Cavities 17 – Enlarged lymph nodes 5 – Opacities 15 – Miliary pattern 8 – Effusion
SPECIMEN FOR SMEAR/XPERT	N/A	N/A	0 – Sputum smear/ Xpert negative or not done	0 – Sputum smear/ Xpert/culture negative or not done	0 – Sputum smear/ Xpert negative or not done	0 – Xpert/culture negative or not done Treat - Xpert/culture positive

		KEITH EDWARDS TB SCORE (1987)	MODIFIED KEITH EDWARDS TB SCORE	UNION DESK GUIDE (2016)	MODIFIED UNION DESK GUIDE	NEW WHO ALGORITHM (2022)	MODIFIED WHO ALGORITHM
DIAGNOSTIC FEATURE	SCORING SYSTEM (POINTS- BASED)		DIAGNOSTIC GUIDE		OPERATIONAL ALGORITHM		
			1 – Sputum smear or Xpert positive	1 – Sputum smear/ Xpert/culture +	Treat – Sputum smear or Xpert positive		
CNS	3	3	N/A	N/A	N/A	N/A	
SKELETAL	3	3	N/A	N/A	N/A	N/A	
ABDOMINAL	3	3	N/A	N/A	N/A	N/A	
ANGLE DEFORMITY OF SPINE	4	4	N/A	N/A	N/A	N/A	
SCORE INTERPRETATION	Treat if score is ≥7		Treat if ≥2 features are present		Treat if score is >10		

CNS: Central nervous system: change in temperament, fits +/- abnormal cerebrospinal fluid findings2

Skeletal: Joint swelling, bone swelling, sinuses3

Abdominal: Unexplained abdominal mass, ascites4