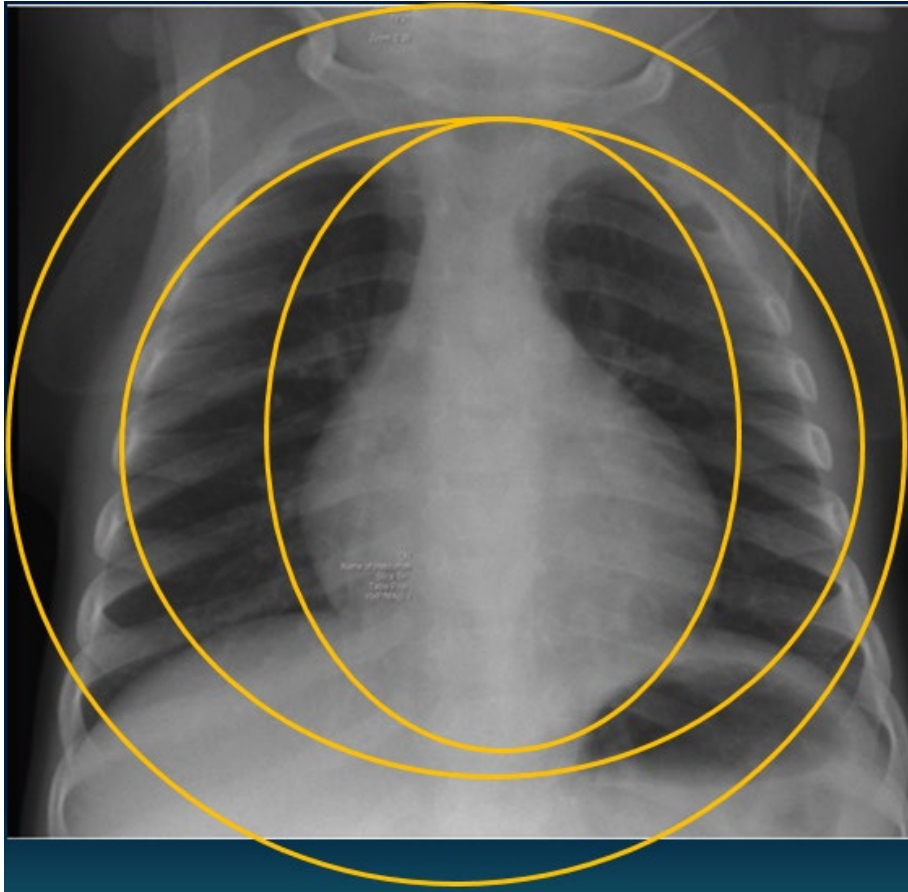


Evaluation of a short training course of chest X-ray interpretation for the diagnosis of paediatric TB

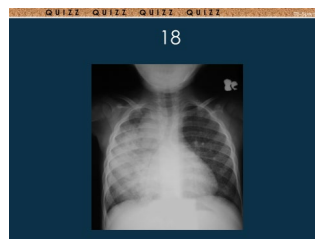
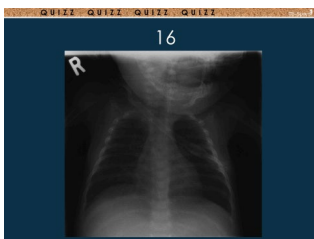
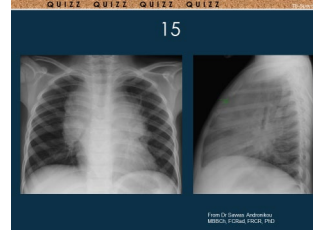
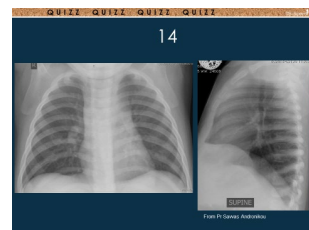
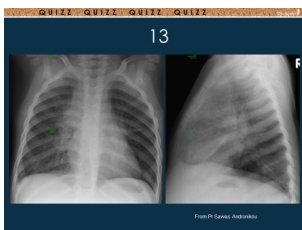
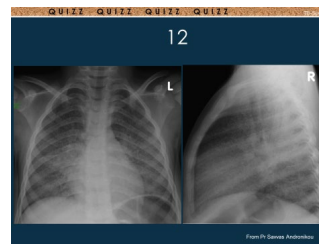
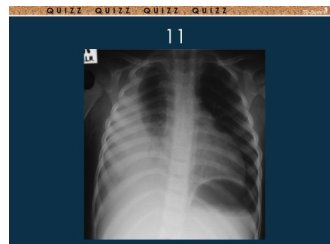
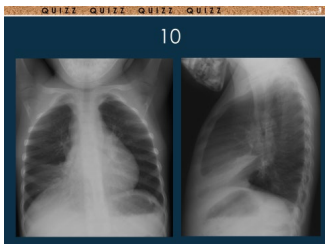
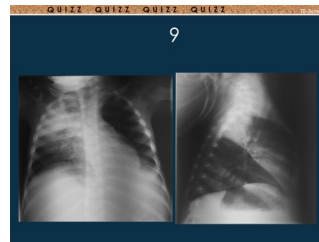
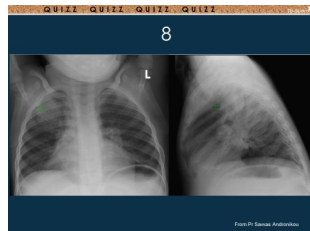
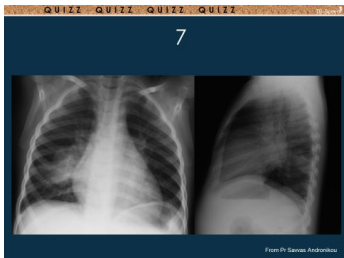
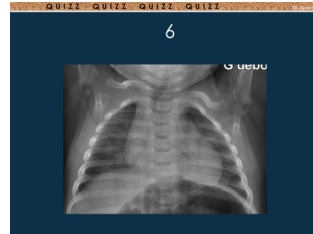
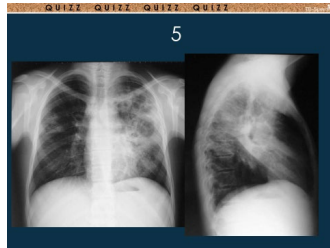
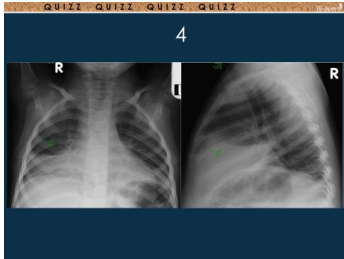
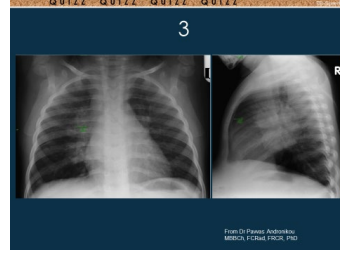
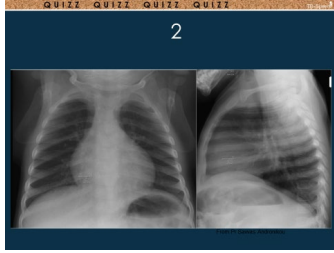
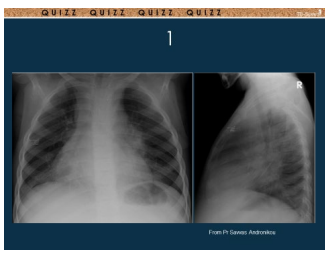


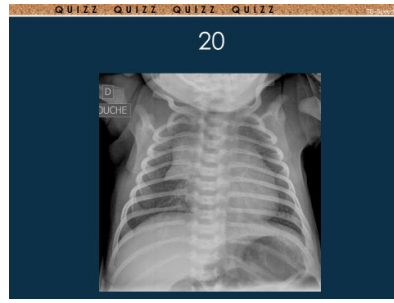
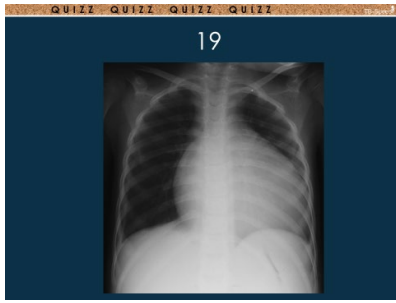
Supplementary Figure S1: Systematic approach with the three-circle method

Supplementary Table S1: Description of the Chest X- Rays used for the pre- and post-training assessments

Training slides	CXR features	CXR Classification according TB Speed training Module
Slide 1 (AP and lateral CXR)	Lymphadenopathies	Abnormal; suggestive of TB
Slide 2 (AP and lateral CXR)	Normal CXR without thymus	Normal; Not TB
Slide 3 (AP and lateral CXR)	Lymphadenopathies	Abnormal; suggestive of TB
Slide 4 (AP and lateral CXR)	Alveolar Opacities	Abnormal; suggestive of TB
Slide 5 (AP and lateral CXR)	Alveolar Opacity + Cavitation	Abnormal; suggestive of TB
Slide 6 (AP)	Badly inspired film	Unreadable
Slide 7 (AP and lateral CXR)	Lymphadenopathies +Alveolar Opacities	Abnormal; suggestive of TB
Slide 8 (AP and lateral CXR)	Opacities alveolar + Lymphadenopathies	Abnormal; suggestive of TB
Slide 9 (AP and lateral CXR)	Alveolar opacities	Abnormal; suggestive of TB
Slide 10 (AP and lateral CXR)	Atelectasis + Lymphadenopathies	Abnormal; suggestive of TB
Slide 11 (AP CXR)	Pleurisy	Abnormal; suggestive of TB
Slide 12 (AP and lateral CXR)	Miliary	Abnormal; suggestive of TB
Slide 13 (AP and lateral CXR)	Atelectasis + Lymphadenopathies	Abnormal; suggestive of TB
Slide 14 (AP and lateral CXR)	Normal view with thymus	Normal, not TB
Slide 15 (AP and lateral CXR)	Lymphadenopathies	Abnormal; suggestive of TB
Slide 16 (AP CXR)	Badly penetrated film	Unreadable
Slide 17 (AP CXR)	Alveolar Opacities + cavity within the alveolar opacity	Abnormal; suggestive of TB
Slide 18 (AP CXR)	Alveolar Opacities + Lymphadenopathies + Airways compression	Abnormal; suggestive of TB
Slide 19 (AP CXR)	Pericarditis	Abnormal; suggestive of TB
Slide 20 (AP CXR)	Normal view with thymus	Normal; not TB

AP antero-posterior; PA : postero anterior; CXR: Chest – X- ray; TB :Tuberculosis





Supplementary Figure S2: Set of 20 chest X-rays used for the pre- and post-training assessments

Supplementary Table S2: Characteristics of the course participants by country

Characteristics	Cambodia, N = 34	Cameroon, N = 32	Ivory Coast, N = 39	Sierra Leone, N = 37	Uganda, N = 49	Overall, N = 191
Age, median (IQR)	40 (30, 49)	34 (30, 42)	37 (32, 44)	NA	37 (31, 42)	37 (31, 45)
Sex, n (%)						
Female	9 (26.5)	16 (50.0)	4 (10.3)	12 (40.0)	23 (47.9)	64 (35.0)
Male	25 (73.5)	16 (50.0)	35 (89.7)	18 (60.0)	25 (52.1)	119 (65.0)
Place of Work, n (%)						
District Hospital	10 (29.4)	25 (80.0)	14 (35.9)	10 (34.5)	19 (42.2)	78 (43.5)
Primary Health Centre	24 (70.6)	6 (20.0)	25 (64.1)	19 (65.5)	26 (57.8)	100 (56.5)
Previous experience interpreting CXR, n (%)	9 (26.5)	16 (55.2)	11 (28.2)	8 (26.7)	1 (2.0)	45 (24.9)
CXR interpreted last month before training, n (%)	1 (2.9)	9 (31.0)	12 (30.8)	1 (2.8)	0 (0)	23 (16.7)
Position, n (%)						
Medical Doctor	6 (17.6)	14 (43.8)	11 (28.2)	8 (21.6)	4 (8.2)	43 (22.5)
Nurse	16 (47.1)	12 (37.5)	23 (59.0)	11 (29.7)	41 (83.7)	103 (53.9)
Radiology Technician	4 (11.8)	4 (12.5)	4 (10.3)	5 (13.5)	1 (2.0)	18 (9.4)
Others	7 (20.6)	2 (6.3)	1 (2.6)	0 (0.0)	2 (4.1)	12 (6.3)
Not specify	1 (2.9)	0 (0.0)	0 (0.0)	13 (35.1)	1 (2.0)	15 (7.9)

CXR: chest x-ray

Supplementary Table S3: Results of the pre- and post-training assessment by participant's profession and countries

Characteristic	Medical Doctor			Nurse			Radiology Technician			Others			Not specify		
	Pre-training , N = 780	Post-training , N = 780	p-value ¹	Pre-training , N = 1,140	Post-training , N = 1,140	p-value ¹	Pre-training , N = 340	Post-training , N = 340	p-value ¹	Pre-training , N = 180	Post-training , N = 180	p-value ²	Pre-training , N = 400	Post-training, N = 400	p-value ¹
Cambodia, n/N (%)	85/120 (70.8)	108/120 (90.0)	<0.001	142/220 (64.5)	177/220 (80.5)	<0.001	60/80 (75.0)	67/80 (83.8)	0.2	65/120 (54.2)	88/120 (73.3)	0.002	72/140 (51.4)	106/140 (75.7)	<0.001
Cameroon, n/N (%)	211/280 (75.4)	237/280 (84.6)	0.006	136/240 (56.7)	190/240 (79.2)	<0.001	68/80 (85.0)	66/80 (82.5)	0.7	24/40 (60.0)	29/40 (72.5)	0.2	NA	NA	-
Ivory coast, n/N (%)	161/220 (73.2)	187/220 (85.0)	0.002	290/460 (63.0)	365/460 (79.3)	<0.001	63/80 (78.8)	73/80 (91.3)	0.027	17/20 (85.0)	18/20 (90.0)	>0.9	NA	NA	-
Sierra Leone, n/N (%)	87/160 (54.4)	115/160 (71.9)	0.001	128/220 (58.2)	167/220 (75.9)	<0.001	69/100 (69.0)	83/100 (83.0)	0.020	NA	NA		165/260 (63.5)	201/260 (77.3)	<0.001

¹Mc Neymar test; NA: Not Applicable

Supplementary Table S4: Results of pre- and post-training reading assessment per group of chest X-rays and participants profession

Characteristics	Medical Doctor			Nurse			Radiology Technician			Others			Not specify		
	Pre-trainin g,, N = 780	Post-trainin g, N = 780	p-value ¹	Pre-trainin g,, N = 1,140	Post-trainin g, N = 1,140	p-value ¹	Pre-trainin g,, N = 340	Post-trainin g, N = 340	p-value ¹	Pre-trainin g, N = 180	Post-trainin g, N = 180	p-value ¹	Pre-trainin g,N = 400	Post-trainin g, N = 400	p-value ¹
Adenopathies, n(%)	84 (71.8)	95 (81.2)	0.090	103 (60.2)	145 (84.8)	<0.001	43 (84.3)	45 (88.2)	0.6	17 (63.0)	24 (88.9)	0.026	39 (65.0)	48 (80.0)	0.066
Adenopathies +Alveolar Opacities, n (%)	24 (61.5)	30 (76.9)	0.14	34 (59.6)	54 (94.7)	<0.001	14 (82.4)	15 (88.2)	>0.9	5 (55.6)	8 (88.9)	0.3	10 (50.0)	18 (90.0)	0.006
Alveolar Opacities, n(%)	34 (87.2)	38 (97.4)	0.2	39 (68.4)	48 (84.2)	0.047	14 (82.4)	15 (88.2)	>0.9	6 (66.7)	7 (77.8)	>0.9	17 (85.0)	16 (80.0)	>0.9
Alveolar Opacities + adenopathies + Airways compression, n (%)	35 (89.7)	38 (97.4)	0.4	48 (84.2)	54 (94.7)	0.067	17 (100.0)	17 (100.0)		7 (77.8)	5 (55.6)	0.6	16 (80.0)	18 (90.0)	0.7
Alveolar Opacities + cavity within the alveolar opacity, n (%)	37 (94.9)	38 (97.4)	>0.9	48 (84.2)	56 (98.2)	0.008	17 (100.0)	17 (100.0)		8 (88.9)	8 (88.9)	>0.9	17 (85.0)	18 (90.0)	>0.9
Alveolar Opacity + Cavitation, n (%)	37 (94.9)	38 (97.4)	>0.9	51 (89.5)	56 (98.2)	0.11	17 (100.0)	17 (100.0)		6 (66.7)	7 (77.8)	>0.9	14 (70.0)	19 (95.0)	0.091
Alveolar opacities, n(%)	32 (82.1)	35 (89.7)	0.3	38 (66.7)	45 (78.9)	0.14	15 (88.2)	15 (88.2)	>0.9	8 (88.9)	6 (66.7)	0.6	14 (70.0)	15 (75.0)	0.7
Atelectasis + adenopathies, n(%)	54 (69.2)	67 (85.9)	0.013	70 (61.4)	102 (89.5)	<0.001	26 (76.5)	28 (82.4)	0.5	12 (66.7)	16 (88.9)	0.2	24 (60.0)	39 (97.5)	<0.001

Badly inspired film, n (%)	15 (38.5)	16 (41.0)	0.8	23 (40.4)	23 (40.4)	>0.9	3 (17.6)	10 (58.8)	0.013	5 (55.6)	4 (44.4)	>0.9	9 (45.0)	6 (30.0)	0.3
Badly penetrated film, n (%)	33 (84.6)	36 (92.3)	0.5	38 (66.7)	54 (94.7)	<0.001	16 (94.1)	17 (100.0)	>0.9	5 (55.6)	9 (100.0)	0.082	16 (80.0)	16 (80.0)	>0.9
Miliary, n(%)	35 (89.7)	37 (94.9)	0.7	38 (66.7)	51 (89.5)	0.003	16 (94.1)	17 (100.0)	>0.9	6 (66.7)	9 (100.0)	0.2	13 (65.0)	19 (95.0)	0.044
Normal view with thymus, n (%)	5 (6.4)	41 (52.6)	<0.001	26 (22.8)	29 (25.4)	0.6	5 (14.7)	16 (47.1)	0.004	1 (5.6)	5 (27.8)	0.2	4 (10.0)	13 (32.5)	0.014
Normal view without thymus, n (%)	23 (59.0)	28 (71.8)	0.2	17 (29.8)	24 (42.1)	0.2	11 (64.7)	10 (58.8)	0.7	1 (11.1)	2 (22.2)	>0.9	4 (20.0)	7 (35.0)	0.3
Opacities alveolar + adenopathies, n (%)	34 (87.2)	36 (92.3)	0.7	43 (75.4)	53 (93.0)	0.010	16 (94.1)	17 (100.0)	>0.9	4 (44.4)	9 (100.0)	0.029	10 (50.0)	20 (100.0)	<0.001
Pericarditis, n(%)	31 (79.5)	35 (89.7)	0.2	42 (73.7)	54 (94.7)	0.002	14 (82.4)	16 (94.1)	0.6	9 (100.0)	8 (88.9)	>0.9	16 (80.0)	17 (85.0)	>0.9
Pleurisy, n(%)	31 (79.5)	39 (100.0)	0.005	38 (66.7)	51 (89.5)	0.003	16 (94.1)	17 (100.0)	>0.9	6 (66.7)	8 (88.9)	0.6	14 (70.0)	18 (90.0)	0.2

¹Mc Neymar test