

Supplementary table 1 - Demographic, occupational and clinical characteristics of healthcare workers associated with the chance of having both negative tests for latent tuberculosis infection.

Variables	N (%)	QFT negative and TST negative			
		N (%)*	Crude OR	95 % CI	p-value
Gender					
Male	75 (10.6)	21 (28.0)	Ref		
Female	633 (89.4)	226 (35.7)	1.42	0.84-2.42	0.187
Contact with a household member with TB					
Yes	129 (18.2)	38 (29.5)	Ref		
No	579 (81.8)	209 (36.1)	1.35	0.89-2.04	0.153
Morbidities					
Yes	172 (24.3)	59 (34.3)	Ref		
No	536 (75.7)	188 (35.0)	1.03	0.72-1.48	0.853
Alcohol use					
Yes	306 (43.2)	93 (30.4)	Ref		
No	402 (56.8)	154 (38.3)	1.42	1.03-1.95	0.028
Professional category					
Medical Doctors	47 (6.6)	22 (46.8)	Ref		
Registered Nurses	94 (13.4)	25 (26.6)	0.41	0.19-0.85	0.017
Technical Assistant in Nursing	241 (34.0)	69 (28.6)	0.45	0.24-0.86	0.015
Community Health Agent	326 (46.0)	131 (40.2)	0.76	0.41-1.41	0.389

continue

Variables	N (%)	QFT negative and TST negative			
		N (%)*	Crude		p-value
			OR	95 % CI	
Working only at primary care					
Yes	394 (55.6)	149 (37.8)	Ref		
No	314 (44.4)	98 (31.2)	0.74	0.54-1.02	0.067
Current smoker					
Yes	69 (9.8)	15 (21.7)	Ref		
Never smoked/ex-smoker	639 (90.2)	232 (36.3)	2.05	1.13-3.71	0.017
Working in health care unit with TB control program					
Yes	144 (38.3)	44 (30.5)	Ref		
No	232 (61.7)	71 (30.6)	1.00	0.63-1.57	0.992
Working time in primary care					
≥ 10 years	366 (51.7)	112 (30.6)	Ref		
< 10 years	342 (48.3)	135 (39.5)	1.47	1.08-2.01	0.013
Worked in highly exposed TB setting**					
Yes	223 (31.5)	73 (32.7)	Ref		
No	485 (68.5)	174 (35.9)	1.14	0.82-1.60	0.416

continue

Variables	N (%)	QFT negative and TST negative			
		N (%)*	Crude		p-value
			OR	95 % CI	
Performed home visits in					
nursing					
home/asylum/prisons					
Yes	52 (7.3)	20 (38.5)	Ref		
No	656 (92.7)	227 (34.6)	0.84	0.47-1.51	0.574
Type of service facility***					
Centralized	414 (58.5)	126 (30.4)	Ref		
Decentralized	294 (41.5)	121 (41.2)	1.59	1.16-2.18	0.003
TB incidence in the city					
High	500 (70.6)	157 (31.4)	Ref		
Intermediary	208 (29.4)	90 (43.2)	1.66	1.19-2.32	0.002
Active TB assistance					
Yes	525 (74.2)	175 (33.3)	Ref		
No	183 (25.8)	72 (39.3)	1.29	0.91-1.83	0.142
Tuberculosis care					
training					
Yes	524 (74.0)	181 (34.5)	Ref		
No	184 (26.0)	66 (35.9)	1.05	0.74-1.50	0.745
Use of N95 respirators					
Always	55 (7.8)	21 (38.2)	Ref		
Not always	653 (92.2)	226 (34.6)	0.85	0.48-1.51	0.593

continue

Variables	N (%)	QFT negative and TST negative			
		Crude			p-value
		N (%)*	OR	95 % CI	
Air flow in the health care unit					
Yes	537 (75.8)	190 (35.4)	Ref		
No	171 (24.2)	57 (33.3)	0.91	0.63-1.31	0.625
Type of facility organization					
Basic Health Unit ****	176 (25.4)	58 (33.0)	Ref		
Basic Health Unit with Family Health Strategy	516 (74.6)	183 (35.5)	1.11	0.77-1.60	0.546

Abbreviations: CI - confidence interval; QFT- Quantiferon® TB Gold in-tube test; Ref – reference; TST - tuberculin skin test; TB – tuberculosis.

Symbols: (*) The proportions were calculated for each category of explanatory variables; (**) necropsy room, radiotherapy and respiratory disease wards; (***) centralized (TB treatment occurs only in reference units in primary care); or decentralized (TB treatment is available in all primary health care units of the city); (****) Basic Health Unit or Basic Health Unit with Program CHA.

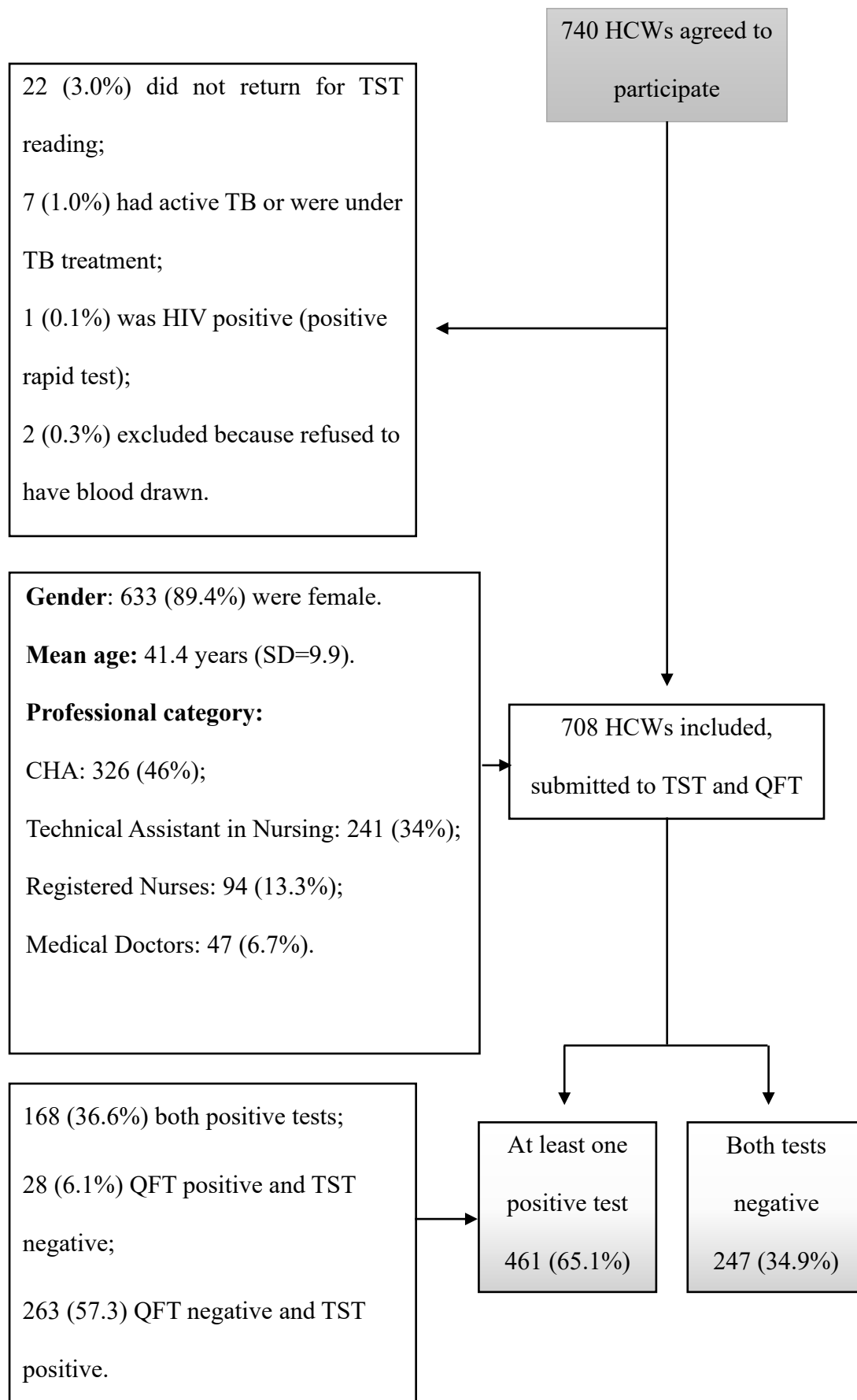
Positive criterion: for TST ≥ 5 mm and for QFT ≥ 0.35 UI

Supplementary table 2 - Predictive performance of CART model for risk of having negative results of both QFT and TST in healthcare workers of primary care (threshold=0.27).

Both negative tests (QFT and TST)		
	Result	95% CI
AUC	0.62	0.58-0.67
Accuracy	0.68	0.65-0.71
Specificity	0.78	0.74-0.81
Sensibility	0.44	0.38-0.50
PPV	0.52	0.45-0.59
NPV	0.73	0.68-0.76

Abbreviations: AUC - area under the curve; CART - classification and regression trees; CHA - Community Health Agents; CI - confidence interval; QFT- Quantiferon® TB Gold in-tube test; NPV: negative predictive value; PPV: positive predictive value; TST - tuberculin skin test.

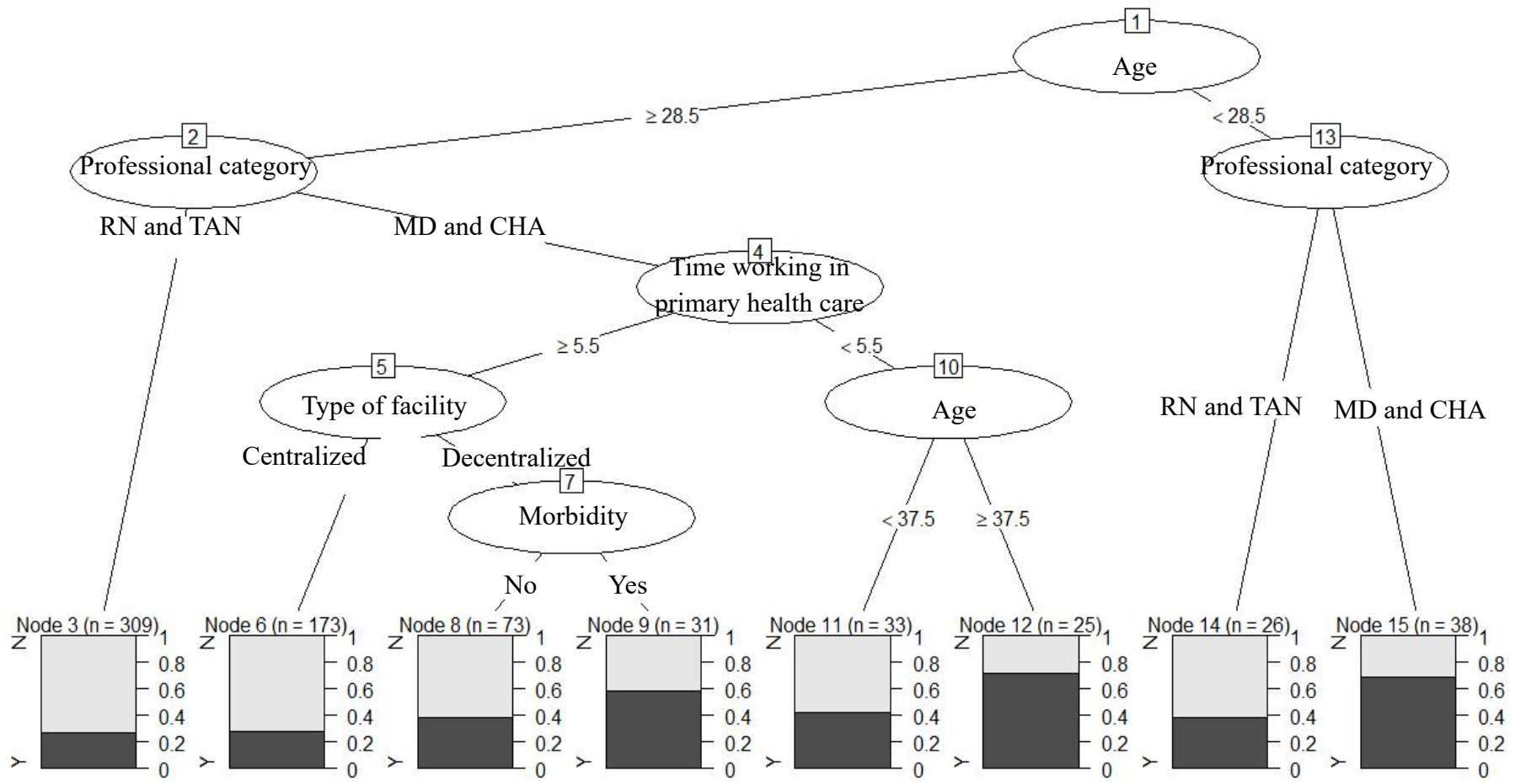
Supplementary figure 1 - Flow chart of healthcare workers participating in the previous study.



Abbreviations: CHA- Community Health Agents; HCW- healthcare workers; HIV- Human Immunodeficiency Virus; QFT- Quantiferon® TB Gold in-tube test; SD- standard deviation; TB- tuberculosis; TST- Tuberculin skin test.

Positive criterion: for TST ≥ 5 mm and for QFT ≥ 0.35 UI.

Supplementary figure 2 - Classification and regression tree for predicting model of risk of both negative tests: TST and QFT. The decision has five predictors: age (continue variable); professional category; time working in primary health care (years); type of facility (centralized – city where TB treatment occurs only in reference units in primary care; or decentralized – this treatment is available in all primary health care units of the city) and morbidities. Terminal nodes containing predictions for new observations include 3, 6, 8, 11 and 14 (predict the risk for at least one positive test) and 9, 12 and 15 predict the risk for negative tests. To obtain a prediction, one starts at the top of the tree and follows the arrow corresponding to data for the new observation until a terminal node is reached.



Abbreviations: CHA- Community Health Agents; MD- Medical Doctors; QFT Quantiferon® TB Gold in-tube test; RN- Registered Nurses; TAN- Technical Assistant in Nursing and TST- tuberculin skin test.

Positive criterion: for TST ≥ 5 mm and for QFT ≥ 0.35 UI

Supplementary table 3 - Predictive performance of CART model with age variable for risk of having negative results of both QFT and TST in health care workers of primary care (threshold=0.32).

Both negative tests (QFT and TST)		
	Result	95% CI
AUC	0.62	0.58-0.66
Accuracy	0.69	0.65-0.72
Specificity	0.75	0.72-0.79
Sensibility	0.46	0.40-0.52
PPV	0.50	0.44-0.57
NPV	0.72	0.68-0.76

Abbreviations: AUC - area under the curve; CART - classification and regression trees; CHA - Community Health Agents; CI - confidence interval; QFT- Quantiferon® TB Gold in-tube test; NPV: negative predictive value; PPV: positive predictive value; TST - tuberculin skin test.