CHEST® Online Supplement

Derivation and Validation of a Diagnostic Prediction Tool for Interstitial Lung Disease

Janelle Vu Pugashetti, MD; Aleksander Kitich, MD; Shehabaldin Alqalyoobi, MD; Anne-Catherine Maynard-Paquette, MD; David Pritchard, MD; Julia Graham, MD; Noelle Boctor, MD; Andrea Kulinich, BS; Elyse Lafond, MD; Elena Foster, MS; Cesar Mendez, BS; Saad Choudhry, MD; Jean Chalaoui, MD; Julie Morisset, MD; Michael Kadoch, MD; and Justin M. Oldham, MD

e-Table 1. ILD-Screen Score Final Regression Model

Variable	Coefficient	p-value	95% CI
Age	0.0544	<0.001	0.035 - 0.073
TLC	-0.7827	<0.001	-1.027 - -0.538
FEV1	1.4567	<0.001	1.0 - 1.913
DLCO	-0.2336	<0.001	-0.292 - -0.175
Height (cm)	0.0694	<0.001	0.043 - 0.096
Indication risk category	1.1645	<0.001	0.957 - 1.372
Intercept	-13.7755	<0.001	-18.097 - -9.454

e-Table 2. ILD-Screen Test performance by ILD Risk Score Threshold

ILD Risk Score	Sensitivity	Specificity	PPV	NPV
≥7.5	0.88	0.72	0.38	0.97
≥7.75	0.87	0.78	0.44	0.97
≥8	0.86	0.81	0.48	0.97
≥8.25	0.81	0.85	0.52	0.96
≥8.5	0.78	0.88	0.56	0.95

e-Table 3. Prospective ILD–Screen Test performance stratified by presence of cough and/or dyspnea

ILD-Screen	Cough/dyspnea (+)		Cough/dyspnea (-)	
	ILD on chest CT			
	(+)	(-)	(+)	(-)
(+)	43	41	6	5
(-)	12	164	1	41
Sensitivity	0.78		0.86	
Specificity	0.8		0.89	
PPV	0.51		0.55	
NPV	0.93		0.98	
LR (+)	3.9		7.8	
LR (-)	0.28		0.16	

PPV = positive predictive value, NPV = negative predictive value; LR = likelihood ratio

e-Table 4. Prospective ILD-Screen test performance in primary care versus other settings

ILD-Screen	Primary Care		Other Settings	
	ILD on chest CT			
	(+)	(-)	(+)	(-)
(+)	39	31	11	17
(-)	9	124	4	108
Sensitivity	0.81		0.73	
Specificity	0.8		0.86	
PPV	0.56		0.39	
NPV	0.93		0.97	
LR (+)	4.1		5.2	
LR (-)	0.24		0.32	

PPV = positive predictive value, NPV = negative predictive value; LR = likelihood ratio

e-Table 5. Sensitivity analysis of prospective ILD-Screen test performance with removal of individual variables

Characteristic	Full Model	Age removed	TLC removed	FEV1 removed	DLCO removed	Height removed	IRC removed
Sensitivity	**0.79**	0.75	0.76	0.78	0.78	0.79	0.78
Specificity	**0.83**	0.75	0.75	0.69	0.65	0.8	0.66
PPV	**0.51**	0.41	0.41	0.36	0.34	0.47	0.34
NPV	**0.95**	0.93	0.93	0.93	0.93	0.94	0.93

PPV = positive predictive value, NPV = negative predictive value

e-Figure 1. Receiver operator curves for derivation (a), external validation (b) and prospective validation (c) cohorts.