Online supplementary Table S4: Lung function indices performance to make a diagnosis of asthma

Index test	N	Setting	Population	ICS treated	Reference	Asthma diagnosis N (%)	AUC	Cut-off	Sensitivity (%)	Specificity (%)	NPV (%)	PPV (%)	95% specificity
FEV_1/FVC													
Stanbrook Chest 1995	500	Secondary care	Referred to laboratory lung function	NA	PC20 M < 8mg/ml			90% predicted	53	28	24	57	NA
Hunter Chest 2002	89	Secondary care	Asthma symptoms	46%	PC20M < 8 mg/ml or BdR 15% or ΔPEF20%	69 (77%)	NA	77%	61 (49-72)	60 (38-81)	31	84	NA
Bougard Bioch Pharmacol 2020	129 training cohort	Secondary care	Referred to an asthma clinic	44%	PC20M< 16 mg/ml	85(66%)	0.63	77%	82	46	44	83	NA
	141 validation cohort	Secondary care	Referred to an asthma clinic	47%	PC20M< 16 mg/ml	96 (68%)	0.68	79%	69	67	49	82	NA
Nekoee ERJ Open 2020	702	Secondary care	Asthma symptoms	0%	PC20M< 8mg/ml or BdR 12%- and 200-ml improvement	349 (50%)	0.67 (0.63-0.71)	76%	51(42-57)	76 (68-81)	61	68	68%
PEFR													
Den Otter Brit J Gen Pract 1997	318	Primary care	Asthma symptoms	0%	BdR 9% predicted or PC20H < 8mg/ml	146 (46%)	NA	Variation ≥15%	5	97	60	60	NA
								Variation ≥10%	14	96	62	69	NA
								Variation ≥5%	56	69	66	56	
Thiadens ERJ 1998	170	Primary care	Persistent cough for at least 2 weeks	0%	PD20M < 15.6 µmol	43 (25%)	NA	Variation ≥20%	36	82	65	58	NA
								Variation ≥15%	56	73	70	58	NA
Parameswaran ERJ 1999	132	Secondary care	Asthma symptoms	NA	Chest physician judgment	56 (42%)	NA	Variation ≥20%	77	74	79	72	NA
Goldstein Chest 2000	57	Secondary care	Asthma symptoms	0%	PC20M, BdR, ICS response or fluctuation on several spirometry findings	41(72%)	NA	Variation ≥20%	54	75	39	85	NA
Hunter Chest 2002	89	Secondary care	Asthma symptoms	46%	PC20M < 8 mg/ml or BdR 15% or ΔPEF20%	69 (77%)	NA	Variation ≥22%	43 (31-55)	75 (56-94)	28	86	NA
Ulrik J Asthma 2005	609	Population survey	NA	NA	Self-reported asthma	74 (12%)	NA	Variation ≥20%	47	90	92	41	NA

Index test	N	Setting	Population	ICS treated	Reference	Asthma diagnosis N (%)	AUC	Cut-off	Sensitivity (%)	Specificity (%)	NPV (%)	PPV (%)	95% specificity
SGaw													
Topalovic Respir Research 2016	349	Secondary care FEV_1/FVC > LLN	Asthma symptoms Vs Healthy Subjects*	NA	Chest physician diagnosis (BC or BdR)	213 (61%)	NA	0.98 1/Kpas.sec	50	64	NA	75	NA
Bougard Bioch Pharmacol 2020	121 training cohort	Secondary care	Referred to an asthma clinic	45%	PC20M< 16 mg/ml	85(66%)	0.69	0.73 1/Kpas.sec	86	49	47	87	NA
Bougard Bioch Pharmacol 2020	149 validation cohort	Secondary care	Referred to an asthma clinic	47%	PC20M< 16 mg/ml	96 (68%)	0.62	0.87 1/Kpas.sec	51	71	45	76	NA
RV/TLC													
Stanbrook Chest 1995	169	Secondary care	Referred to a laboratory function FEV1/FVC > 90% predicted	NA	PC20M< 8mg/ml	72 (43%)	NA	120% predicted	29	81	54	61	NA
							NA	125% predicted	28	88	62	62	NA
							NA	130% predicted	24	91	65	61	NA
							NA	135% predicted	17	96	75	61	NA
							NA	140% predicted	10	97	70	59	NA
Bougard Bioch Pharmacol 2020	121 training cohort	Secondary care	Asthma symptoms	44%	PC20M < 16 mg/ml	85(66%)	0.74	99% predicted	54	87	69	79	NA
	149 validation cohort	Secondary care	Asthma symptoms	47%	PC20M < 16 mg/ml	96 (68%)	0.75	102% predicted	71	68	51	83	NA

PC20M: Provocative concentration of methacholine causing a fall in FEV_1 of 20%

BdR: Bronchodilator reversibility

ΔPEF 20%: Peak expiratory flow variability of at least 20%