

Table 2: Estimates of agreement, sensitivity, specificity, and predictive values for asthma algorithms, 12-18 years

# Years	Algorithm		Sens. (%)	Spec. (%)	Youden	PPV (%)	NPV (%)	
1	1	1+ P	0.37	29.7	98.1	0.29	70.2	90.1
	2	2+ P	0.24	16.2	99.4	0.16	81.8	88.5
	3	1+ Rx	0.48	43.2	97.2	0.40	70.6	91.8
	4	1+ H or 1+ P	0.37	29.7	98.1	0.28	70.2	90.1
	5	1+ H or 2+ P	0.24	16.2	99.4	0.16	81.8	88.5
	6	1+ H or 1+ P or 1+ Rx	0.52	48.6	96.8	0.45	70.1	92.5
	7	1+ H or 2+ P or 2+ Rx	0.42	33.3	98.6	0.32	78.7	90.6
2	8	1+ P	0.43	45.9	96.5	0.42	67.1	92.1
	9	2+ P	0.30	33.3	99.0	0.32	84.1	90.6
	10	1+ Rx	0.64	67.6	95.4	0.63	69.4	95.0
	11	1+ H or 1+ P	0.44	45.9	96.5	0.42	67.1	92.1
	12	1+ H or 2+ P	0.31	33.3	99.0	0.32	84.1	90.6
	13	1+ H or 1+ P or 1+ Rx	0.63	69.4	94.5	0.64	65.8	95.3
	14	1+ H or 2+ P or 2+ Rx	0.55	48.6	98.2	0.47	80.6	92.6
3	15	1+ P	0.46	62.2	95.2	0.57	66.3	94.2
	16	2+ P	0.30	47.7	98.3	0.46	81.5	92.4
	17	1+ Rx	0.66	76.6	93.9	0.70	65.9	96.3
	18	1+ H or 1+ P	0.48	62.2	95.2	0.57	66.3	94.2
	19	1+ H or 2+ P	0.34	47.7	98.3	0.46	81.5	92.4
	20	1+ H or 1+ P or 1+ Rx	0.66	78.4	92.4	0.71	61.3	96.5
	21	1+ H or 2+ P or 2+ Rx	0.68	69.4	96.8	0.66	77.0	95.4
5	22	1+ P	0.49	74.8	92.0	0.67	58.9	96.0
	23	2+ P	0.36	60.4	96.7	0.57	73.6	94.1
	24	1+ Rx	0.64	86.5	90.7	0.77	58.9	97.8
	25	1+ H or 1+ P	0.51	74.8	92.0	0.67	58.9	96.0
	26	1+ H or 2+ P	0.38	60.4	96.7	0.57	73.6	94.1
	27	1+ H or 1+ P or 1+ Rx	0.63	87.4	88.5	0.76	53.9	97.9
	28	1+ H or 2+ P or 2+ Rx	0.70	80.2	94.6	0.75	69.5	96.9

Notes:

- * # Years = number of years of administrative data to which the case ascertainment algorithm was applied. For example, 1+P in one year identifies individuals as disease cases if they had one or more physician billing claims with the relevant diagnosis code(s) in a one-year period. The algorithm 1+H or 2+P in one year identifies individuals as disease cases if they had one or more hospitalization or two or more physician claims with the relevant diagnosis code(s) in a one-year period.
- * H = Hospital separation; P = Physician billing claim; Rx = Prescription drug record; PPV = Positive Predictive Value; NPV = Negative Predictive Value

Source: Lix L, Yogendran M, Burchill C, Metge C, McKeen N, Moore D, Bond R. *Defining and Validating Chronic Diseases: An Administrative Data Approach*. Winnipeg, MB: Manitoba Centre for Health Policy, 2006.

Table 3: Estimates of agreement, sensitivity, specificity, and predictive values for asthma algorithms, 19-49 years

# Years	Algorithm		Sens. (%)	Spec. (%)	Youden	PPV (%)	NPV (%)
1	1 1+P	0.39	29.8	99.0	0.29	71.6	94.5
	2 2+ P	0.26	17.1	99.5	0.17	73.6	93.6
	3 1+ Rx	0.52	50.0	97.5	0.48	62.3	96.0
	4 1+H or 1+P	0.40	30.3	99.0	0.29	71.9	94.5
	5 1+ H or 2+ P	0.27	18.0	99.5	0.18	74.5	93.7
	6 1+H or 1+P or 1+Rx	0.53	53.5	97.1	0.51	60.1	96.2
	7 1+ H or 2+ P or 2+ Rx	0.52	41.7	99.0	0.41	77.9	95.4
2	8 1+P	0.37	42.5	98.5	0.41	69.3	95.4
	9 2+ P	0.24	28.9	99.1	0.28	73.3	94.4
	10 1+ Rx	0.56	65.4	95.7	0.61	55.6	97.1
	11 1+H or 1+P	0.38	43.0	98.4	0.41	69.0	95.5
	12 1+ H or 2+ P	0.26	29.8	99.1	0.29	73.1	94.5
	13 1+H or 1+P or 1+Rx	0.57	70.2	95.1	0.65	53.9	97.5
	14 1+ H or 2+ P or 2+ Rx	0.59	53.5	98.4	0.52	73.1	96.3
3	15 1+P	0.35	48.7	97.6	0.46	62.0	95.9
	16 2+ P	0.21	34.2	98.8	0.33	70.9	94.8
	17 1+ Rx	0.55	70.2	94.4	0.65	50.6	97.5
	18 1+H or 1+P	0.35	49.1	97.5	0.47	61.9	95.9
	19 1+ H or 2+ P	0.24	35.1	98.8	0.34	70.8	94.9
	20 1+H or 1+P or 1+Rx	0.54	74.6	93.3	0.68	47.8	97.8
	21 1+ H or 2+ P or 2+ Rx	0.59	60.1	97.6	0.58	67.5	96.8
5	22 1+P	0.47	60.5	95.9	0.56	54.8	96.7
	23 2+ P	0.35	50.4	97.8	0.48	65.0	96.0
	24 1+ Rx	0.53	78.1	92.2	0.70	45.1	98.1
	25 1+H or 1+P	0.47	60.5	95.9	0.56	54.5	96.7
	26 1+ H or 2+ P	0.36	50.4	97.7	0.48	64.6	96.0
	27 1+H or 1+P or 1+Rx	0.51	82.0	90.4	0.72	41.3	98.4
	28 1+ H or 2+ P or 2+ Rx	0.61	71.1	96.0	0.67	59.1	97.6

Notes:

- * # Years = number of years of administrative data to which the case ascertainment algorithm was applied. For example, 1+P in one year identifies individuals as disease cases if they had one or more physician billing claims with the relevant diagnosis code(s) in a one-year period. The algorithm 1+H or 2+P in one year identifies individuals as disease cases if they had one or more hospitalization or two or more physician claims with the relevant diagnosis code(s) in a one-year period.
- * H = Hospital separation; P = Physician billing claim; Rx = Prescription drug record; PPV = Positive Predictive Value; NPV = Negative Predictive Value

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Table 4: Estimates of agreement, sensitivity, specificity, and predictive values for asthma algorithms, 50+ years

# Years	Algorithm		Sens. (%)	Spec. (%)	Youden	PPV (%)	NPV (%)	
1	1	1+ P	0.42	32.6	98.8	0.31	68.9	94.9
	2	2+ P	0.30	20.5	99.6	0.20	79.6	94.0
	3	1+ Rx	0.51	68.9	93.6	0.63	46.0	97.4
	4	1+ H or 1+ P	0.42	33.7	98.8	0.33	68.8	94.9
	5	1+ H or 2+ P	0.32	21.6	99.5	0.21	78.8	94.1
	6	1+ H or 1+ P or 1+ Rx	0.50	70.0	93.2	0.63	45.1	97.5
	7	1+ H or 2+ P or 2+ Rx	0.54	61.1	95.8	0.57	53.7	96.9
2	8	1+ P	0.33	44.2	97.9	0.42	62.2	95.7
	9	2+ P	0.25	29.5	99.0	0.28	70.0	94.6
	10	1+ Rx	0.47	76.3	90.9	0.67	39.9	98.0
	11	1+ H or 1+ P	0.36	46.3	97.8	0.44	62.9	95.8
	12	1+ H or 2+ P	0.28	31.6	99.0	0.31	70.6	94.8
	13	1+ H or 1+ P or 1+ Rx	0.47	77.4	90.3	0.67	38.8	98.0
	14	1+ H or 2+ P or 2+ Rx	0.52	67.4	94.3	0.62	48.3	97.3
3	15	1+ P	0.31	52.6	96.7	0.49	56.2	96.3
	16	2+ P	0.24	35.8	98.5	0.34	65.4	95.1
	17	1+ Rx	0.45	78.9	89.4	0.68	37.1	98.2
	18	1+ H or 1+ P	0.33	54.2	96.7	0.51	56.6	96.4
	19	1+ H or 2+ P	0.28	37.4	98.4	0.36	65.1	95.2
	20	1+ H or 1+ P or 1+ Rx	0.44	81.1	88.4	0.69	35.7	98.3
	21	1+ H or 2+ P or 2+ Rx	0.52	71.6	93.0	0.65	44.9	97.6
5	22	1+ P	0.39	60.5	95.7	0.56	52.8	96.8
	23	2+ P	0.34	44.2	97.9	0.42	62.7	95.7
	24	1+ Rx	0.43	82.6	87.7	0.70	34.7	98.4
	25	1+ H or 1+ P	0.41	61.1	95.6	0.57	52.7	96.9
	26	1+ H or 2+ P	0.37	45.3	97.8	0.43	61.9	95.7
	27	1+ H or 1+ P or 1+ Rx	0.43	85.3	86.4	0.72	33.3	98.7
	28	1+ H or 2+ P or 2+ Rx	0.56	77.9	91.9	0.70	43.4	98.1

Notes:

- * # Years = number of years of administrative data to which the case ascertainment algorithm was applied. For example, 1+P in one year identifies individuals as disease cases if they had one or more physician billing claims with the relevant diagnosis code(s) in a one-year period. The algorithm 1+H or 2+P in one year identifies individuals as disease cases if they had one or more hospitalization or two or more physician claims with the relevant diagnosis code(s) in a one-year period.
- * H = Hospital separation; P = Physician billing claim; Rx = Prescription drug record; PPV = Positive Predictive Value; NPV = Negative Predictive Value

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