

Table 3: Estimates of agreement, sensitivity, specificity, and predictive values for arthritis algorithms

# Years	Algorithm	<i>k</i>	Sens. (%)	Spec. (%)	Youden	PPV (%)	NPV (%)	
1	1	1+ P	0.28	43.4	84.3	0.28	46.6	82.4
	2	2+ P	0.24	25.3	93.8	0.19	56.4	79.8
	3	1+ H or 2+ P	0.25	26.3	93.6	0.20	56.4	80.0
	4	1+ H or 2+ P or (1 P & 2+ Rx)	0.30	34.5	91.9	0.26	57.4	81.6
2	5	1+ P	0.32	60.0	75.9	0.36	44.1	85.7
	6	2+ P	0.32	41.7	88.4	0.30	53.2	82.7
	7	1+ H or 2+ P	0.33	42.6	88.1	0.31	53.2	82.9
	8	1+ H or 2+ P or (1 P & 2+ Rx)	0.37	51.7	84.9	0.37	52.0	84.7
3	9	1+ P	0.31	69.0	68.7	0.38	41.1	87.5
	10	2+ P	0.34	50.9	83.7	0.35	49.7	84.3
	11	1+ H or 2+ P	0.35	51.8	83.4	0.35	49.7	84.5
	12	1+ H or 2+ P or (1 P & 2+ Rx)	0.36	60.3	78.9	0.39	47.6	86.3
5	13	1+ P	0.27	78.1	58.6	0.37	37.4	89.4
	14	2+ P	0.35	63.1	76.2	0.39	45.7	86.7
	15	1+ H or 2+ P	0.35	63.7	75.9	0.40	45.6	86.8
	16	1+ H or 2+ P or (1 P & 2+ Rx)	0.34	71.1	70.1	0.41	42.9	88.4

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 4: Estimates of agreement, sensitivity, specificity, and predictive values for rheumatoid arthritis algorithms

# Years	Algorithm		<i>k</i>	Sens. (%)	Spec. (%)	Youden	PPV (%)	NPV (%)
1	1	1+ P	0.12	7.4	99.8	0.07	73.9	92.3
	2	2+ P	0.08	5.0	99.9	0.05	76.7	92.2
	3	1+ H or 2+ P	0.09	5.4	99.9	0.05	78.1	92.2
	4	1+ H or 2+ P or (1 P & 2+ Rx)	0.12	6.3	99.9	0.07	80.6	92.3
2	5	1+ P	0.14	8.9	99.6	0.09	65.1	92.4
	6	2+ P	0.11	6.5	99.8	0.06	71.4	92.3
	7	1+ H or 2+ P	0.11	7.0	99.8	0.07	72.7	92.3
	8	1+ H or 2+ P or (1 P & 2+ Rx)	0.14	7.6	99.7	0.08	72.9	92.3
3	9	1+ P	0.16	10.7	99.4	0.10	62.8	92.6
	10	2+ P	0.13	7.8	99.7	0.08	70.6	92.4
	11	1+ H or 2+ P	0.14	8.5	99.7	0.08	72.2	92.4
	12	1+ H or 2+ P or (1 P & 2+ Rx)	0.14	8.9	99.7	0.10	70.7	92.4
5	13	1+ P	0.17	11.3	99.2	0.11	55.9	92.6
	14	2+ P	0.13	8.3	99.7	0.08	69.1	92.4
	15	1+ H or 2+ P	0.14	8.9	99.7	0.09	70.7	92.4
	16	1+ H or 2+ P or (1 P & 2+ Rx)	0.17	9.4	99.6	0.11	68.3	92.5

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 5: Estimates of agreement, sensitivity, specificity, and predictive values for osteoarthritis algorithms

# Years	Algorithm	<i>k</i>	Sens. (%)	Spec. (%)	Youden	PPV (%)	NPV (%)	
1	1	1+ P	0.24	23.5	95.9	0.19	40.8	91.2
	2	2+ P	0.16	12.3	98.5	0.11	49.3	90.3
	3	1+ H or 2+ P	0.17	13.1	98.3	0.11	48.5	90.4
	4	1+ H or 2+ P or (1 P & 2+ Rx)	0.22	19.0	97.2	0.16	45.2	90.9
2	5	1+ P	0.30	35.1	93.3	0.28	38.9	92.3
	6	2+ P	0.23	19.8	97.2	0.17	45.8	90.9
	7	1+ H or 2+ P	0.23	20.8	97.0	0.18	45.3	91.0
	8	1+ H or 2+ P or (1 P & 2+ Rx)	0.28	29.8	94.7	0.25	40.5	91.8
3	9	1+ P	0.31	41.4	91.2	0.33	36.3	92.8
	10	2+ P	0.25	24.5	95.9	0.21	41.8	91.3
	11	1+ H or 2+ P	0.25	25.3	95.7	0.21	41.3	91.4
	12	1+ H or 2+ P or (1 P & 2+ Rx)	0.25	34.9	92.9	0.26	37.2	92.2
5	13	1+ P	0.32	49.9	88.7	0.39	34.8	93.6
	14	2+ P	0.29	31.6	94.3	0.26	40.2	92.0
	15	1+ H or 2+ P	0.29	32.8	94.0	0.27	39.8	92.1
	16	1+ H or 2+ P or (1 P & 2+ Rx)	0.31	43.1	90.7	0.34	35.8	93.0

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.