

**Appendix 4 (as supplied by the authors): Sensitivity and specificity for case definitions 1–4,*
by primary diagnosis of end-stage renal disease (diabetes or glomerulonephritis) over 5 years (2004–2008)**

Appendix 4A: Sensitivity and specificity by diabetes diagnosis†

Diabetes	med_dialysis	mrp_dialysis	COUNT	PERCENT	Category	rate	L_normal	U_normal	Definition*
0	No	No	4824	75.87	Sensitivity	87.08	85.08	89.09	1
	No	Yes	139	2.19	Specificity	91.33	90.57	92.09	
	Yes	No	458	7.20	PPV	67.17	64.70	69.63	
	Yes	Yes	937	14.74	NPV	97.20	96.74	97.66	
					Accuracy	90.61	89.80	91.42	
					Kappa	0.70	0.68	0.72	
1	No	No	2962	64.13	Sensitivity	88.08	86.37	89.79	1
	No	Yes	164	3.55	Specificity	91.34	90.37	92.30	
	Yes	No	281	6.08	PPV	81.18	79.20	83.16	
	Yes	Yes	1212	26.24	NPV	94.75	93.97	95.54	
					Accuracy	90.37	89.33	91.40	
					Kappa	0.78	0.76	0.79	
0	No	No	4938	77.67	Sensitivity	85.04	82.91	87.17	2
	No	Yes	161	2.53	Specificity	93.49	92.82	94.15	
	Yes	No	344	5.41	PPV	72.68	70.22	75.14	
	Yes	Yes	915	14.39	NPV	96.84	96.36	97.32	
					Accuracy	92.06	91.32	92.80	
					Kappa	0.74	0.71	0.76	
1	No	No	3023	65.45	Sensitivity	86.85	85.06	88.63	2
	No	Yes	181	3.92	Specificity	93.22	92.35	94.08	
	Yes	No	220	4.76	PPV	84.45	82.56	86.34	
	Yes	Yes	1195	25.87	NPV	94.35	93.55	95.15	
					Accuracy	91.32	90.34	92.29	
					Kappa	0.79	0.78	0.81	
0	No	No	5271	82.90	Sensitivity	68.96	66.19	71.72	3
	No	Yes	334	5.25	Specificity	99.79	99.67	99.91	
	Yes	No	11	0.17	PPV	98.54	97.68	99.40	
	Yes	Yes	742	11.67	NPV	94.04	93.42	94.66	
					Accuracy	94.57	93.98	95.17	
					Kappa	0.78	0.76	0.80	
1	No	No	3224	69.80	Sensitivity	74.42	72.11	76.72	3
	No	Yes	352	7.62	Specificity	99.41	99.15	99.68	
	Yes	No	19	0.41	PPV	98.18	97.37	98.99	
	Yes	Yes	1024	22.17	NPV	90.16	89.18	91.13	
					Accuracy	91.97	91.08	92.86	
					Kappa	0.79	0.77	0.81	
0	No	No	5274	82.95	Sensitivity	49.26	46.27	52.24	4
	No	Yes	546	8.59	Specificity	99.85	99.74	99.95	
	Yes	No	8	0.13	PPV	98.51	97.49	99.54	
	Yes	Yes	530	8.34	NPV	90.62	89.87	91.37	
					Accuracy	91.29	90.56	92.01	
					Kappa	0.61	0.58	0.64	
1	No	No	3231	69.95	Sensitivity	46.29	43.66	48.93	4
	No	Yes	739	16.00	Specificity	99.63	99.42	99.84	
	Yes	No	12	0.26	PPV	98.15	97.11	99.19	
	Yes	Yes	637	13.79	NPV	81.39	80.17	82.60	
					Accuracy	83.74	82.59	84.89	
					Kappa	0.54	0.51	0.57	

*Case definitions: 1 = Any ONE outpatient dialysis claim; 2 = Any TWO outpatient dialysis claims; 3 = Any TWO outpatient dialysis claims >90 days apart; 4= Any TWO outpatient dialysis claims >90 days apart (no gaps >21 days).

†Diabetes definition: ICD-9 code 250, ICD-10 codes E10–E14. A person was defined with diabetes if they had an ICD code/claim for diabetes from 1984 until day of dialysis claim and then 2 ICD codes/claims for diabetes within 2 years from 1984 until end of their admin data.

Appendix 4B: Sensitivity and specificity by nephritis diagnosis†

Nephritis	med_dialysis	mrp_dialysis	COUNT	PERCENT	Category	rate	L_normal	U_normal	Definition*
0	No	No	7242	72.33	Sensitivity	86.73	85.27	88.19	1
	No	Yes	274	2.74	Specificity	91.12	90.49	91.74	
	Yes	No	706	7.05	PPV	71.73	69.96	73.49	
	Yes	Yes	1791	17.89	NPV	96.35	95.93	96.78	
					Accuracy	90.21	89.54	90.88	
					Kappa	0.72	0.71	0.74	
1	No	No	544	56.43	Sensitivity	92.51	89.88	95.13	1
	No	Yes	29	3.01	Specificity	94.28	92.39	96.18	
	Yes	No	33	3.42	PPV	91.56	88.80	94.32	
	Yes	Yes	358	37.14	NPV	94.94	93.14	96.73	
					Accuracy	93.57	91.56	95.58	
					Kappa	0.87	0.83	0.90	
0	No	No	7409	73.99	Sensitivity	85.33	83.80	86.85	2
	No	Yes	303	3.03	Specificity	93.22	92.67	93.77	
	Yes	No	539	5.38	PPV	76.58	74.84	78.31	
	Yes	Yes	1762	17.60	NPV	96.07	95.64	96.50	
					Accuracy	91.59	90.97	92.21	
					Kappa	0.75	0.74	0.77	
1	No	No	552	57.26	Sensitivity	89.92	86.92	92.92	2
	No	Yes	39	4.05	Specificity	95.67	94.01	97.33	
	Yes	No	25	2.59	PPV	93.30	90.76	95.84	
	Yes	Yes	348	36.10	NPV	93.40	91.40	95.40	
					Accuracy	93.36	91.35	95.37	
					Kappa	0.86	0.83	0.89	
0	No	No	7925	79.15	Sensitivity	70.65	68.69	72.62	3
	No	Yes	606	6.05	Specificity	99.71	99.59	99.83	
	Yes	No	23	0.23	PPV	98.45	97.82	99.08	
	Yes	Yes	1459	14.57	NPV	92.90	92.35	93.44	
					Accuracy	93.72	93.20	94.23	
					Kappa	0.79	0.77	0.80	
1	No	No	570	59.13	Sensitivity	79.33	75.29	83.36	3
	No	Yes	80	8.30	Specificity	98.79	97.89	99.68	
	Yes	No	7	0.73	PPV	97.77	96.14	99.40	
	Yes	Yes	307	31.85	NPV	87.69	85.17	90.22	
					Accuracy	90.98	88.77	93.18	
					Kappa	0.81	0.77	0.84	
0	No	No	7934	79.24	Sensitivity	46.78	44.63	48.93	4
	No	Yes	1099	10.98	Specificity	99.82	99.73	99.92	
	Yes	No	14	0.14	PPV	98.57	97.83	99.31	
	Yes	Yes	966	9.65	NPV	87.83	87.16	88.51	
					Accuracy	88.88	88.24	89.53	
					Kappa	0.58	0.56	0.60	
1	No	No	571	59.23	Sensitivity	51.94	46.96	56.92	4
	No	Yes	186	19.29	Specificity	98.96	98.13	99.79	
	Yes	No	6	0.62	PPV	97.10	94.82	99.39	
	Yes	Yes	201	20.85	NPV	75.43	72.36	78.50	
					Accuracy	80.08	77.24	82.93	
					Kappa	0.55	0.50	0.60	

*Case definitions: 1 = Any ONE outpatient dialysis claim; 2 = Any TWO outpatient dialysis claims; 3 = Any TWO outpatient dialysis claims >90 days apart; 4= Any TWO outpatient dialysis claims >90 days apart (no gaps >21 days).

†Nephritis definition: ICD-9 codes 583, 583.0, 583.1, 583.2, 583.4, 583.9, 583.81, 583.89; ICD-10 codes N00–N08. A person was defined with nephritis if they had an ICD code/claim for nephritis from 1984 until day of dialysis claim.