

Supplemental Material

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Supplemental Table 1. Qualifying condition codes, revenue centers, and *Healthcare Common Procedure Coding System* codes indicating hemodialysis or peritoneal dialysis in a dialysis facility, home, or skilled nursing facility.

Modality and setting	Definition
In-facility hemodialysis	(1) Revenue center 0821; <u>and</u> (2) <i>Healthcare Common Procedure Coding System</i> code 90935, 90937, 90989, 90993, 90999; <u>and</u> (3) Condition code 71 (“full care in unit”)
Hemodialysis in a skilled nursing facility	(1) Revenue center 0821; <u>and</u> (2) <i>Healthcare Common Procedure Coding System</i> code 90935, 90937, 90989, 90993, 90999; <u>and</u> (3) Evidence of treatment in a skilled nursing facility: (a) Condition code 71 (“full care in unit”) <i>and</i> indication that dialysis facility is located in a skilled nursing facility, per Dialysis Facility Reports; <u>or</u> (b) Condition code 74 (“home”) <i>and</i> indication that dialysis facility is located in a skilled nursing facility, per Dialysis Facility Reports; <u>or</u> (c) Condition codes 74 (“home”) <i>and</i> 80 (“ESRD beneficiary receiving home dialysis in nursing facilities”) (d) Prevalence of recent history of skilled nursing facility care $\geq 67\%$ among apparent home hemodialysis patients in epidemiologic week 6 of 2020
Home hemodialysis	(1) Revenue center 0821; <u>and</u> (2) <i>Healthcare Common Procedure Coding System</i> code 90935, 90937, 90989, 90993, 90999; <u>and</u> (3) Condition code 74 (“home”); <u>and</u> (4) No indication that dialysis facility is located in a skilled nursing facility, per Dialysis Facility Reports
Home peritoneal dialysis	(1) Revenue center 0831, 0841, or 0851; <u>and</u> (2) <i>Healthcare Common Procedure Coding System</i> code 90945, 90947, 90989, 90993, 90999; <u>and</u> (3) Condition code 74 (“home”); <u>and</u> (4) No indication that dialysis facility is located in a skilled nursing facility, per Dialysis Facility Reports

Supplemental Table 2. Qualifying place of service or *Current Procedural Terminology* codes indicating nursing facility care.

Type	Code
Place of service	31 (“skilled nursing facility”)
	32 (“nursing facility”)
Current Procedural Terminology	99304
	99305
	99306
	99307
	99308
	99309
	99310
	99315
	99316
	99318

Supplemental Table 3. Qualifying place of service codes on physician claims indicating COVID-19 infection.

Code
02 (“telehealth provided in other than patient’s home”)
11 (“office”)
19 (“off-campus outpatient hospital”)
20 (“urgent care facility”)
21 (“inpatient hospital”)
22 (“on-campus outpatient hospital”)
23 (“emergency room – hospital”)
31 (“skilled nursing facility”)
32 (“nursing facility”)
65 (“end-stage renal disease treatment facility”)

Supplemental Table 4. Unadjusted rates of COVID-19 diagnosis, COVID-19 hospitalization, and COVID-19 death from epidemiologic week 12 to week 23 of 2020 (March 15–June 6), from week 24 of 2020 to week 37 of 2020 (June 7–September 12), from week 38 of 2020 to week 8 of 2021 (September 13–February 27), and from week 9 of 2021 to week 22 of 2021 (February 28–June 5), among Medicare fee-for-service beneficiaries undergoing maintenance dialysis.

	Week 12 of 2020– Week 23 of 2020	Week 24 of 2020– Week 37 of 2020	Week 38 of 2020– Week 8 of 2021	Week 9 of 2021– Week 22 of 2021
COVID-19 diagnosis				
In-facility HD without recent history of SNF care	0.21	0.22	0.45	0.13
In-facility HD with recent history of SNF care	1.79	1.20	1.95	0.24
HD in a SNF	3.06	0.73	1.19	0.45
Home HD	0.10	0.13	0.30	0.16
Home PD	0.10	0.13	0.33	0.11
COVID-19 hospitalization				
In-facility HD without recent history of SNF care	0.17	0.18	0.35	0.10
In-facility HD with recent history of SNF care	1.30	0.79	1.13	0.19
HD in a SNF	2.19	0.40	0.63	0.27
Home HD	0.06	0.09	0.20	0.10
Home PD	0.07	0.10	0.25	0.08
COVID-19 death				
In-facility HD without recent history of SNF care	0.02	0.02	0.04	0.01
In-facility HD with recent history of SNF care	0.17	0.09	0.16	0.02
HD in a SNF	0.29	0.03	0.05	0.01
Home dialysis ^a	0.01	0.01	0.03	0.01

Abbreviations: HD, hemodialysis; PD, peritoneal dialysis; SNF, skilled nursing facility.

Note: Rates enumerated as events per 100 patient-weeks.

^a Home HD and home PD are pooled, due to the small number of COVID-19 deaths among home HD patients.

Supplemental Table 5. Adjusted odds ratios of COVID-19 diagnosis from epidemiologic week 12 to week 23 of 2020 (March 15–June 6), from week 24 of 2020 to week 37 of 2020 (June 7–September 12), from week 38 of 2020 to week 8 of 2021 (September 13–February 27), and from week 9 of 2021 to week 22 of 2021 (February 28–June 5), among Medicare fee-for-service beneficiaries undergoing maintenance dialysis.

	Week 12 of 2020– Week 23 of 2020		Week 24 of 2020– Week 37 of 2020		Week 38 of 2020– Week 8 of 2021		Week 9 of 2021– Week 22 of 2021	
	AOR	95% CI	AOR	95% CI	AOR	95% CI	AOR	95% CI
Either in-facility HD with recent history of SNF care or HD in a SNF (referent: in-facility HD without recent history of SNF care)								
California	12.8	11.0-14.8	8.5	7.4-9.7	4.1	3.7-4.5	1.9	1.1-3.1
Florida	7.8	6.2-9.8	5.3	4.6-6.1	3.9	3.3-4.5	1.6	1.1-2.4
Georgia	11.4	9.3-14.1	6.3	5.2-7.6	4.1	3.5-4.9	2.0	1.1-3.8
Illinois	7.4	6.3-8.6	5.1	3.8-6.8	4.2	3.7-4.9	3.1	2.2-4.5
Michigan	6.5	5.3-7.9	3.4	2.0-5.7	3.6	2.9-4.4	1.4	0.88-2.1
New York	4.1	3.7-4.5	5.7	4.4-7.3	2.4	2.1-2.7	1.4	1.0-1.8
North Carolina	8.4	5.8-12.2	4.7	3.5-6.3	4.7	4.0-5.5	1.2	0.51-2.7
Pennsylvania	10.4	8.6-12.6	5.4	3.6-8.2	4.3	3.7-5.1	1.8	1.1-2.9
Texas	5.0	4.1-6.2	3.9	3.5-4.4	3.5	3.2-3.9	1.9	1.2-2.8
Virginia	7.7	5.7-10.5	5.8	4.0-8.2	6.0	5.0-7.3	1.3	0.55-3.0
Either home HD or home PD (referent: in-facility HD without recent history of SNF care)								
California	0.64	0.45-0.91	0.50	0.38-0.66	0.60	0.53-0.69	0.88	0.57-1.4
Florida	0.40	0.21-0.75	0.59	0.46-0.77	0.84	0.69-1.0	0.59	0.39-0.89
Georgia	0.59	0.37-0.94	0.82	0.63-1.1	0.79	0.66-0.95	0.84	0.51-1.4
Illinois	0.59	0.43-0.82	1.3	0.87-1.8	0.91	0.76-1.1	0.73	0.46-1.2
Michigan	0.54	0.36-0.82	0.59	0.25-1.4	0.64	0.48-0.85	1.0	0.73-1.5
New York	0.46	0.34-0.63	0.60	0.28-1.3	0.64	0.49-0.82	0.90	0.60-1.3
North Carolina	0.51	0.20-1.3	0.85	0.56-1.3	0.73	0.59-0.91	1.4	0.88-2.2
Pennsylvania	0.37	0.20-0.68	0.50	0.20-1.3	0.72	0.56-0.93	1.1	0.72-1.7
Texas	0.69	0.47-1.0	0.48	0.39-0.59	0.84	0.75-0.94	1.2	0.84-1.6
Virginia	0.59	0.31-1.1	0.33	0.14-0.75	0.90	0.70-1.2	0.70	0.35-1.4

Abbreviations: AOR, adjusted odds ratio; CI, confidence interval; HD, hemodialysis; PD, peritoneal dialysis; SNF, skilled nursing facility.

Note: Adjustment factors were age, sex, race/ethnicity, ESKD duration, diabetes mellitus, heart failure, and recent hospitalization.

Supplemental Table 6. Adjusted odds ratios of COVID-19 hospitalization from epidemiologic week 12 to week 23 of 2020 (March 15–June 6), from week 24 of 2020 to week 37 of 2020 (June 7–September 12), from week 38 of 2020 to week 8 of 2021 (September 13–February 27), and from week 9 of 2021 to week 22 of 2021 (February 28–June 5), among Medicare fee-for-service beneficiaries undergoing maintenance dialysis.

	Week 12 of 2020– Week 23 of 2020		Week 24 of 2020– Week 37 of 2020		Week 38 of 2020– Week 8 of 2021		Week 9 of 2021– Week 22 of 2021	
	AOR	95% CI	AOR	95% CI	AOR	95% CI	AOR	95% CI
Either in-facility HD with recent history of SNF care or HD in a SNF (referent: in-facility HD without recent history of SNF care)								
California	10.5	8.7-12.6	4.7	4.0-5.5	2.7	2.4-2.9	2.4	1.6-3.6
Florida	8.2	6.3-10.7	4.3	3.6-5.0	2.8	2.4-3.3	1.9	1.4-2.8
Georgia	7.4	5.8-9.5	4.3	3.5-5.3	2.3	1.9-2.8	2.0	1.1-3.6
Illinois	5.8	4.8-6.9	4.2	2.9-5.9	2.2	1.9-2.6	0.97	0.60-1.6
Michigan	5.3	4.3-6.6	2.8	1.5-5.0	2.5	1.9-3.2	0.80	0.49-1.3
New York	2.7	2.4-3.0	3.8	2.7-5.4	1.3	1.2-1.6	1.2	0.88-1.5
North Carolina	5.4	3.3-9.0	2.8	1.9-4.1	2.7	2.2-3.3	1.6	0.78-3.1
Pennsylvania	8.6	7.0-10.7	3.7	2.3-5.9	2.9	2.4-3.4	1.4	0.94-2.2
Texas	4.7	3.5-6.3	2.9	2.5-3.4	2.4	2.1-2.7	1.4	0.98-2.1
Virginia	5.1	3.5-7.5	3.5	2.3-5.4	3.1	2.5-3.9	1.3	0.61-2.8
Either home HD or home PD (referent: in-facility HD without recent history of SNF care)								
California	0.64	0.39-1.1	0.41	0.28-0.59	0.53	0.45-0.63	1.1	0.65-1.8
Florida	0.30	0.12-0.74	0.66	0.47-0.92	0.87	0.69-1.1	0.55	0.32-0.93
Georgia	0.51	0.27-0.95	0.93	0.69-1.3	0.71	0.56-0.90	0.56	0.30-1.1
Illinois	0.57	0.38-0.86	1.7	1.1-2.8	1.0	0.81-1.3	0.58	0.33-1.0
Michigan	0.45	0.26-0.79	0.26	0.06-1.1	0.69	0.48-0.98	0.97	0.64-1.5
New York	0.44	0.31-0.64	0.31	0.08-1.3	0.74	0.54-1.0	0.82	0.51-1.3
North Carolina	0.85	0.33-2.2	0.88	0.52-1.5	0.71	0.54-0.92	1.0	0.52-1.9
Pennsylvania	0.13	0.04-0.40	0.71	0.28-1.8	0.66	0.49-0.89	1.2	0.70-1.9
Texas	0.82	0.48-1.4	0.45	0.35-0.58	0.75	0.65-0.87	1.1	0.74-1.5
Virginia	0.50	0.23-1.1	0.29	0.11-0.78	0.80	0.57-1.1	1.3	0.69-2.5

Abbreviations: AOR, adjusted odds ratio; CI, confidence interval; HD, hemodialysis; PD, peritoneal dialysis; SNF, skilled nursing facility.

Note: Adjustment factors were age, sex, race/ethnicity, ESKD duration, diabetes mellitus, heart failure, and recent hospitalization.