

Supplements

Table S1. Prevalence, Sensitivity, and Specificity for congestive heart failure (CHF) among selected facilities

Overall Facilities (N=2740)		CHF % (A)	CHF % (B)	Sensitivity*	Specificity*
Mean		56.6	38.9	0.55	0.82
Standard Deviation		24.6	25.9	0.33	0.27
Three facilities with change in profiling status					
Profiling (A)	Profiling (B)	CHF % (A)	CHF % (B)	Sensitivity	Specificity
Worse	Normal	86.8	84.2	0.82	0
Normal	Better	64.3	67.9	0.89	0.7
Normal	Worse	100	0	0	N/A

Model A: Comorbidity based on past year claims prior to dialysis initiation

Model B: Replace CHF from CMS 2728 form

*For Sensitivity and Specificity, Model A is used as reference.

Table S2. Prevalence among selected facilities

Model		Overall facilities	#1	#2	#3	#4	#5	#6	#7	#8	#9	#10	#11	#12	#13
Profiling *	A		N	W	N	N	N	N	W	W	W	W	W	W	W
	B		B	N	W	N	N	N	W	W	W	W	W	W	W
	C		N	N	W	W	W	W	N	N	N	N	N	N	N
Comorbidity		Prevalence (%)													
Alcohol	Claims	0.84	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.69
Dependence	2728	0.46	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
AHD	Claims	51.28	64.29	78.95	85.71	48.72	69.44	100.00	26.09	50.85	85.45	30.00	77.42	11.76	56.25
	2728	28.54	60.71	52.63	0.00	33.33	13.89	20.83	65.22	3.39	0.00	25.00	77.42	70.59	48.44
Cancer	Claims	12.68	17.86	0.00	9.52	71.79	5.56	0.00	21.74	0.00	5.45	15.00	35.48	0.00	3.13
	2728	8.49	17.86	0.00	9.52	10.26	8.33	0.00	26.09	5.08	27.27	7.50	16.13	0.00	0.00
CHF	Claims	56.55	64.29	86.84	100.0	48.72	86.11	100.0	37.68	67.80	81.82	22.50	77.42	17.65	53.13
	2728	38.85	67.86	84.21	0.00	10.26	77.78	37.50	65.22	74.58	56.36	22.50	93.55	88.24	46.88
COPD	Claims	28.59	14.29	39.47	57.14	15.38	50.00	70.83	26.09	47.46	1.82	0.00	29.03	5.88	6.25
	2728	11.48	0.00	18.42	0.00	0.00	22.22	16.67	15.94	59.32	56.36	0.00	29.03	0.00	6.25
CBVD	Claims	22.31	28.57	39.47	9.52	56.41	30.56	41.67	5.80	38.98	1.82	0.00	22.58	5.88	29.69
	2728	10.80	0.00	0.00	9.52	5.13	0.00	33.33	26.09	27.12	0.00	0.00	29.03	0.00	18.75
Diabetes	Claims	64.29	85.71	84.21	90.48	46.15	75.00	50.00	52.17	93.22	78.18	72.50	38.71	58.82	59.38
	2728	61.41	60.71	78.95	90.48	38.46	72.22	29.17	49.28	96.61	32.73	52.50	35.48	70.59	70.31
Drug	Claims	0.67	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Dependence	2728	0.12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Other	Claims	42.37	78.57	97.37	100.0	25.64	75.00	100.0	42.03	37.29	9.09	40.00	70.97	23.53	31.25
Cardiac	2728	20.94	14.29	13.16	4.76	15.38	11.11	20.83	31.88	59.32	23.64	22.50	48.39	11.76	18.75
PVD	Claims	33.57	67.86	44.74	38.10	64.10	61.11	79.17	52.17	37.29	5.45	42.50	29.03	11.76	31.25
	2728	16.02	14.29	7.89	0.00	12.82	30.56	20.83	57.97	16.95	5.45	5.00	9.68	76.47	15.63
Tobacco	Claims	8.39	3.57	0.00	0.00	0.00	8.33	16.67	0.00	0.00	0.00	0.00	6.45	0.00	10.94
Usage	2728	3.75	0.00	18.42	0.00	0.00	0.00	0.00	0.00	3.39	45.45	0.00	22.58	0.00	0.00

*Profiling status: B=Better; N=Normal; W=Worse

2728 denotes Medical Evidence Form (CMS-2728).

Model A: Comorbidity based on past year claims prior to dialysis initiation

Model B: Replace CHF from CMS 2728 form

Model C: Replace all 11 types of comorbidity conditions based on CMS-2728 form

Grey represents profiling status change with A as reference.

Table S3. Co-Morbid Conditions in CMS-2728 form

(Check all that apply currently and/or during last 10 years)	
a. Congestive heart failure	
b. Atherosclerotic heart disease ASHD	
c. Other cardiac disease	
d. Cerebrovascular disease, CVA, TIA	
e. Peripheral vascular disease	
f. History of hypertension	
g. Amputation	
h. Diabetes, currently on insulin	
i. Diabetes, on oral medications	
j. Diabetes, without medications	
k. Diabetic retinopathy	
l. Chronic obstructive pulmonary disease	
m. Tobacco use (current smoker)	
n. Malignant neoplasm, Cancer	
o. Toxic nephropathy	
p. Alcohol dependence	
q. Drug dependence	
r. Inability to ambulate	
s. Inability to transfer	
t. Needs assistance with daily activities	
u. Institutionalized	
1. Assisted Living	
2. Nursing Home	
3. Other Institution	
v. Non-renal congenital abnormality	
w. None	

Excerpted from <https://www.cms.gov/Medicare/CMS-Forms/CMS-Forms/downloads/CMS2728.pdf>

Table S4. Past-Year Comorbidities based on Medicare claims data from CMS dry run of Standardized Readmission Ratio for dialysis facilities, Grouped by HHS' Hierarchical Condition Categories (CCs)

Description	CC	Detailed Description (if applicable)
Severe infection	1, 3–5	
	1	HIV/AIDS
	3	Central nervous system infection
	4	Tuberculosis
	5	Opportunistic infections
Other infectious disease & pneumonias	6, 111–113	
	6	Other infectious disease
	111	Aspiration and specified bacterial pneumonias
	112	Pneumococcal pneumonia, emphysema, lung abscess
	113	Viral and unspecified pneumonia, pleurisy
Metastatic cancer/acute leukemia	7	
Severe cancer	8–9	
	8	Lung, upper digestive tract, and other severe cancers
	9	Other major cancers
Other major cancers	10–12	
	10	Breast, prostate, colorectal and other cancers and tumors
	11	Other respiratory and heart neoplasms
	12	Other digestive and urinary neoplasms
End-stage liver disease	25–26	
	25	End-Stage Liver Disease
	26	Cirrhosis of Liver
Other hematological disorders	44	
Drug and alcohol disorders	51–52	
	51	Drug/alcohol psychosis
	52	Drug/alcohol dependence
Psychiatric comorbidity	54–56, 58, 60	
	54	Schizophrenia
	55	Major depressive, bipolar, and paranoid disorders
	56	Reactive and unspecified psychosis
	58	Depression
	60	Other psychiatric disorders
Hemiplegia, paraplegia, paralysis	67–69, 100–101	
	67	Quadriplegia, other extensive paralysis
	68	Paraplegia
	69	Spinal cord disorders/injuries
	100	Hemiplegia/hemiparesis

	101	Diplegia (upper), monoplegia, and other paralytic syndromes other paralytic syndromes
Fibrosis of lung or other chronic lung disorders	109	
Ulcers	148–149	
	148	Decubitus ulcer
	149	Decubitus ulcer or chronic skin ulcer
Septicemia/shock	2	
Cardio-respiratory failure or cardio- respiratory shock	79	
Pancreatic disease	32	
Rheumatoid arthritis and inflammatory connective tissue	38	
Respirator dependence/tracheostomy status	77	
Major organ transplant status	128	
Coagulation defects and other specified hematological disorders	46	
Hip fracture/dislocation	158	

Excerpted from Appendix II at <https://www.cms.gov/Medicare/Quality-Initiatives-Patient-Assessment-Instruments/ESRDQIP/Downloads/MeasureMethodologyReportfortheProposedSRRMeasure.pdf>