

Knee Measure 0422

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Table 1b2a. Performance Scores for all Patients with Knee Impairments who were Discharged from Treatment in 2011-2013

Care Type / Body Part	Orthopedic / Knee					
Year	2011		2012		2013	
# of intake patients	69757		86380		151409	
# completed episodes	32544		42769		68852	
# of clinics	1221		1416		2045	
# of providers	2774		3024		4068	
# of states	41		44		49	
FS Intake Measure						
Mean	44.05586		43.77229		43.28584	
Standard Deviation	15.03487		15.07733		14.97615	
Min	0.68		0.75		0.68	
Max	99.82		99.12		99.12	
Quartiles	34.02	Q1	33.84	Q1	33.35	Q1
	43.78	Q2	43.52	Q2	42.96	Q2
	53.05	Q3	52.31	Q3	51.8	Q3
Deciles	26.10	D1	25.84	D1	25.83	D1
	31.55	D2	31.48	D2	31.42	D2
	35.61	D3	35.19	D3	35.15	D3
	40.02	D4	39.68	D4	39.25	D4
	43.78	D5	43.52	D5	42.96	D5
	47.22	D6	46.78	D6	46.29	D6
	51.06	D7	51	D7	50.03	D7
	55.94	D8	55.45	D8	54.96	D8
	63.4	D9	63.4	D9	62.9	D9
FS Discharge Measure						
Mean	62.78858		62.80797		61.99305	
Standard Deviation	16.50676		16.53756		16.41916	
Min	0.86		0.86		0.86	
Max	100		99.62		99.62	
Quartiles	51.39	Q1	51.39	Q1	51.10	Q1
	62.13	Q2	62.13	Q2	60.52	Q2
	72.42	Q3	72.92	Q3	72.42	Q3
Deciles	42.66	D1	42.66	D1	41.84	D1
	49.45	D2	49.31	D2	48.59	D2
	53.59	D3	53.41	D3	52.65	D3
	57.96	D4	57.92	D4	56.6	D4
	62.13	D5	62.13	D5	60.52	D5

	65.8	D6	66.25	D6	64.89	D6
	71.24	D7	71.24	D7	70.15	D7
	75.78	D8	75.78	D8	75.34	D8
	84.61	D9	84.41	D9	83.9	D9
Patient FS Change						
Mean	19.59		19.78		19.50	
Standard Deviation	16.55		16.53		16.37	
Min	-56.94		-72.83		-98.26	
Max	98.26		98.26		98.26	
Quartiles	7.90	Q1	7.91	Q1	7.85	Q1
	17.76	Q2	17.87	Q2	17.63	Q2
	29.44	Q3	29.64	Q3	29.11	Q3
Deciles	0.18	D1	0.15	D1	0.30	D1
	5.64	D2	5.73	D2	5.68	D2
	10	D3	10	D3	9.88	D3
	13.88	D4	14.01	D4	13.76	D4
	17.76	D5	17.86	D5	17.63	D5
	21.87	D6	22.16	D6	21.78	D6
	26.74	D7	26.87	D7	26.5	D7
	32.44	D8	32.91	D8	32.32	D8
	41.28	D9	42.05	D9	41.3	D9
Risk-Adjusted Patient FS Change - Residual						
Mean	1.91		2.30		2.36	
Standard Deviation	14.12		14.10		13.86	
Min	-67.91		-75.46		-87.44	
Max	64.41		58.95		66.60	
Quartiles	-7.48	Q1	-7.28	Q1	-6.98	Q1
	1.00228	Q2	1.32238	Q2	1.3899	Q2
	10.55553	Q3	11.08504	Q3	10.8628	Q3
Deciles	-15.19	D1	-14.83	D1	-14.37	D1
	-9.53551	D2	-9.40663	D2	-8.96892	D2
	-5.62453	D3	-5.45177	D3	-5.14908	D3
	-2.26717	D4	-1.9735	D4	-1.83817	D4
	1.00114	D5	1.31952	D5	1.38939	D5
	4.40512	D6	4.79943	D6	4.80854	D6
	8.2775	D7	8.74057	D7	8.62703	D7
	13.09064	D8	13.76715	D8	13.34922	D8
	20.66332	D9	21.17379	D9	20.72538	D9
Clinician FS Change Score						
Mean	19.19		19.09		18.63	
Standard Deviation	11.18		11.09		10.53	
Min	-36.11		-60.96		-30.76	

Max	96.35		88.30		88.30	
Quartiles	12.96	Q1	12.90	Q1	12.78	Q1
	18.59	Q2	18.65	Q2	18.17	Q2
	24.66	Q3	24.74	Q3	23.76	Q3
Deciles	6.77	D1	6.37	D1	6.82	D1
	11.39	D2	11.31	D2	11.27	D2
	14.17	D3	14.27	D3	13.98	D3
	16.33	D4	16.54	D4	16.05	D4
	18.57	D5	18.65	D5	18.16	D5
	20.68	D6	20.77	D6	20.16	D6
	23.06	D7	23.21	D7	22.5	D7
	26.28	D8	26.43	D8	25.19	D8
	32.51	D9	31.69	D9	30.59	D9
Risk Adjusted Aggregated Clinician Residual Score						
Mean	1.64		1.76		1.87	
Standard Deviation	9.67		9.63		9.12	
Min	-46.44		-53.43		-63.87	
Max	50.13		46.50		53.07	
Quartiles	-3.84	Q1	-3.39	Q1	-3.14	Q1
	1.33757	Q2	1.64128	Q2	1.72278	Q2
	6.7752	Q3	6.9786	Q3	6.60608	Q3
Deciles	-9.49	D1	-9.37	D1	-8.22	D1
	-5.16331	D2	-4.81654	D2	-4.52412	D2
	-2.65263	D3	-2.25919	D3	-2.03239	D3
	-0.45466	D4	-0.20298	D4	-0.07951	D4
	1.32215	D5	1.63784	D5	1.71196	D5
	3.18907	D6	3.42199	D6	3.48594	D6
	5.44904	D7	5.57614	D7	5.41226	D7
	8.00549	D8	8.33406	D8	7.94947	D8
	12.90911	D9	12.79838	D9	12.01935	D9
Clinic FS Change Score						
Mean	19.70		19.31		18.49	
Standard Deviation	9.43		9.61		8.19	
Min	-17.59		-60.96		-26.91	
Max	81.17		67.76		79.22	
Quartiles	14.39	Q1	14.20	Q1	14.09	Q1
	18.89	Q2	18.69	Q2	18.18	Q2
	23.9	Q3	23.91	Q3	22.3	Q3
Deciles	9.88	D1	9.31	D1	9.72	D1
	13.18	D2	13.01	D2	13.15	D2
	15.37	D3	15.1	D3	15.2	D3

	17.25	D4	16.91	D4	16.71	D4
	18.89	D5	18.67	D5	18.18	D5
	20.68	D6	20.53	D6	19.6	D6
	22.6	D7	22.74	D7	21.34	D7
	25.42	D8	25.1	D8	23.47	D8
	30.94	D9	29.04	D9	27.04	D9
Risk Adjusted Aggregated Clinic Residual Score						
Mean	1.50		1.65		1.54	
Standard Deviation	8.10		8.40		7.27	
Min	-28.79		-53.43		-46.25	
Max	44.92		41.83		46.61	
Quartiles	-3.24	Q1	-2.65	Q1	-2.17	Q1
	1.16841	Q2	1.52483	Q2	1.48792	Q2
	5.83346	Q3	5.81637	Q3	5.17596	Q3
Deciles	-7.74	D1	-7.25	D1	-6.51	D1
	-4.24758	D2	-3.909	D2	-3.29629	D2
	-2.43368	D3	-1.80049	D3	-1.20058	D3
	-0.55353	D4	0.02637	D4	0.23451	D4
	1.16841	D5	1.48617	D5	1.4835	D5
	2.87321	D6	3.10272	D6	2.93103	D6
	4.94078	D7	4.73554	D7	4.29767	D7
	7.02101	D8	7.25846	D8	6.15856	D8
	10.58265	D9	10.75709	D9	9.03616	D9

Table 1b2b. Performance Scores for Patients with Knee Impairments who were Discharged from Treatment in 2011-2013 within Ranked Clinics 2011-2013

	Orthopedic / Knee					
Year	2011		2012		2013	
# of intake patients	42066		54157		96079	
# completed episodes	22000		30651		49670	
# of clinics	264		324		544	
# of providers	54		74		116	
# of states	33		39		43	
FS Intake Measure						
Mean	44.05531		43.79196		43.51075	
Standard Deviation	14.91418		14.94314		15.05602	
Min	0.68		0.86		0.68	
Max	99.82		99.12		99.12	
Quartiles	34.02	Q1	33.94	Q1	33.37	Q1
	44.05	Q2	43.69	Q2	43.1	Q2

	52.67	Q3	52.29	Q3	52.2	Q3
Deciles	26.00	D1	25.84	D1	25.83	D1
	31.55	D2	31.54	D2	31.42	D2
	35.61	D3	35.19	D3	35.15	D3
	40.54	D4	39.7	D4	39.42	D4
	44.05	D5	43.69	D5	43.1	D5
	47.18	D6	46.78	D6	46.48	D6
	51.03	D7	50.7	D7	50.55	D7
	55.85	D8	55.45	D8	55.2	D8
	63.45	D9	63.52	D9	63.4	D9
FS Discharge Measure						
Mean	62.95447		62.96328		62.56758	
Standard Deviation	16.29479		16.34184		16.3137	
Min	0.86		0.86		0.86	
Max	99.62		99.62		99.62	
Quartiles	51.43	Q1	51.39	Q1	51.39	Q1
	62.19	Q2	62.19	Q2	61.38	Q2
	72.73	Q3	72.92	Q3	72.42	Q3
Deciles	42.98	D1	42.96	D1	42.79	D1
	49.61	D2	49.46	D2	49.18	D2
	53.65	D3	53.59	D3	53.33	D3
	58.04	D4	57.96	D4	57.79	D4
	62.19	D5	62.19	D5	61.38	D5
	66.25	D6	66.36	D6	65.73	D6
	71.24	D7	71.54	D7	71.02	D7
	75.78	D8	75.78	D8	75.78	D8
	84.21	D9	84.21	D9	83.9	D9
Patient FS Change						
Mean	19.55		19.79		19.87	
Standard Deviation	16.32		16.41		16.37	
Min	-56.94		-55.89		-66.10	
Max	98.26		98.26		98.26	
Quartiles	8.02	Q1	7.96	Q1	8.17	Q1
	17.76	Q2	17.99	Q2	18.11	Q2
	29.33	Q3	29.63	Q3	29.52	Q3
Deciles	0.30	D1	0.21	D1	0.63	D1
	5.8	D2	5.79	D2	5.96	D2
	10.06	D3	9.99	D3	10.17	D3
	13.89	D4	14.1	D4	14.2	D4
	17.76	D5	17.99	D5	18.11	D5
	21.87	D6	22.26	D6	22.34	D6
	26.66	D7	26.94	D7	26.93	D7
	32.31	D8	32.82	D8	32.71	D8

	40.94	D9	41.87	D9	41.56	D9
Risk-Adjusted Patient FS Change - Residual						
Mean	2.04		2.34		2.63	
Standard Deviation	13.88		13.93		13.77	
Min	-67.91		-62.19		-76.67	
Max	58.40		58.95		66.60	
Quartiles	-7.15	Q1	-7.16	Q1	-6.64	Q1
	1.17618	Q2	1.43568	Q2	1.67075	Q2
	10.53001	Q3	11.10621	Q3	11.12709	Q3
Deciles	-14.78	D1	-14.67	D1	-14.06	D1
	-9.22226	D2	-9.22284	D2	-8.6794	D2
	-5.33346	D3	-5.38438	D3	-4.80837	D3
	-2.06522	D4	-1.93198	D4	-1.56103	D4
	1.17618	D5	1.43631	D5	1.67104	D5
	4.51366	D6	4.87657	D6	5.14762	D6
	8.30998	D7	8.76144	D7	8.92836	D7
	13.05012	D8	13.75638	D8	13.64828	D8
	20.40062	D9	20.94602	D9	20.88628	D9
Clinician FS Change Score						
Mean	19.39		20.14		20.44	
Standard Deviation	4.94		5.72		5.09	
Min	10.66		8.06		10.56	
Max	33.69		37.62		35.74	
Quartiles	15.87	Q1	15.81	Q1	16.39	Q1
	18.51	Q2	18.8	Q2	19.75	Q2
	22.05	Q3	24.44	Q3	23.85	Q3
Deciles	13.29	D1	13.92	D1	13.82	D1
	14.76	D2	14.91	D2	15.87	D2
	16.23	D3	16.98	D3	17.27	D3
	17.58	D4	18.05	D4	18.36	D4
	18.14	D5	18.8	D5	19.47	D5
	19.21	D6	20.43	D6	21.23	D6
	20.14	D7	23.2	D7	22.93	D7
	22.05	D8	25.39	D8	24.06	D8
	23.99	D9	27.95	D9	26.95	D9
Risk Adjusted Aggregated Clinician Residual Score						
Mean	1.17		2.15		2.56	
Standard Deviation	4.32		5.09		4.56	
Min	-8.44		-11.65		-7.45	
Max	14.33		17.97		15.94	

Quartiles	-1.65	Q1	-1.44	Q1	-0.44	Q1
	-0.01686	Q2	1.32121	Q2	2.14891	Q2
	3.07606	Q3	5.37211	Q3	6.0357	Q3
Deciles	-4.02	D1	-3.60	D1	-3.74	D1
	-2.20154	D2	-1.90501	D2	-1.31132	D2
	-1.4401	D3	-0.82153	D3	0.07976	D3
	-0.81201	D4	0.54886	D4	1.36124	D4
	-0.21083	D5	1.32121	D5	2.1112	D5
	0.52717	D6	2.2786	D6	2.80736	D6
	1.99222	D7	4.71221	D7	4.41878	D7
	3.07606	D8	6.99718	D8	6.15404	D8
	5.67812	D9	8.79302	D9	7.65982	D9
Clinic FS Change Score						
Mean	19.15		19.53		19.47	
Standard Deviation	4.84		4.45		4.32	
Min	9.31		8.06		8.83	
Max	50.32		34.54		33.91	
Quartiles	15.92	Q1	16.53	Q1	16.54	Q1
	18.46	Q2	19.18	Q2	19.12	Q2
	21.74	Q3	22.52	Q3	22.3	Q3
Deciles	13.97	D1	14.15	D1	14.09	D1
	15.42	D2	15.89	D2	15.95	D2
	16.27	D3	16.9	D3	17.06	D3
	17.25	D4	17.99	D4	18.11	D4
	18.44	D5	19.12	D5	19.09	D5
	19.5	D6	20.56	D6	20.08	D6
	21	D7	21.53	D7	21.49	D7
	22.13	D8	23.18	D8	23.04	D8
	24.02	D9	24.86	D9	24.86	D9
Risk Adjusted Aggregated Clinic Residual Score						
Mean	1.74		2.21		2.41	
Standard Deviation	4.45		4.04		3.81	
Min	-8.52		-11.65		-9.53	
Max	32.47		17.60		16.31	
Quartiles	-1.38	Q1	-0.31	Q1	0.06	Q1
	1.35994	Q2	2.02051	Q2	2.4544	Q2
	4.46392	Q3	4.60517	Q3	4.71707	Q3
Deciles	-3.20	D1	-2.72	D1	-2.55	D1
	-1.91459	D2	-0.9736	D2	-0.65716	D2
	-0.71505	D3	0.2105	D3	0.59036	D3
	0.364	D4	1.34586	D4	1.47876	D4

	1.23564	D5	1.99956	D5	2.40802	D5
	2.2385	D6	2.95354	D6	3.37831	D6
	3.39064	D7	3.96518	D7	4.23733	D7
	4.98022	D8	5.02313	D8	5.37936	D8
	6.67275	D9	7.2084	D9	7.0162	D9

Table 1b.4a Disparities Data Years 2011-2013

	Knee Impairments					
Year	2011		2012		2013	
# of intake patients	69757		86380		151409	
# completed episodes	32544		42769		68852	
# of clinics	1221		1416		2045	
# of providers	2774		3024		4068	
# of states	41		44		49	
Race Question						
# answered	3181		2710		1633	
White	2678	84.19%	2180	80.44%	1204	73.73%
Black/African American	212	6.66%	240	8.86%	223	13.66%
Asian or Pacific Islander	33	1.04%	37	1.37%	38	2.33%
American Indian, Aleut, Eskimo	42	1.32%	35	1.29%	18	1.10%
Other	216	6.79%	218	8.04%	150	9.19%
Gender						
Male	27537	39.58%	34002	39.37%	59326	39.18%
Female	42,220	60.52%	52373	60.63%	92081	60.82%
Average Age	50.7		50.9		52.7	
Standard Deviation	18.8		19.0		19.3	
Min	14		14		14	
Max	108		110		110	
14-19	4041	9.01%	5397	9.4%	7671	9.0%
20-29	3928	8.75%	4838	8.5%	6527	7.7%
30-39	4379	9.76%	5357	9.4%	7018	8.2%
40-49	6426	14.32%	7985	14.0%	10376	12.2%
50-59	9554	21.29%	11657	20.4%	16967	19.9%
60-69	9366	20.87%	12583	22.0%	19870	23.3%
70-79	5462	12.17%	7041	13.3%	12767	15.0%
80-89	1626	3.62%	2116	3.7%	3882	4.6%
90-99	84	0.19%	135	.2%	261	.3%
100-109	4	0.01%	3	.0%%	12	.0%
	44870		57112		85351	

Payer Source						
# Answered	69546		86258		151409	
Indemnity Insurance	1228	1.77%	1584	1.84%	2254	1.50%
Litigation	61	0.09%	69	0.08%	116	0.08%
Medicaid	3346	4.81%	3970	4.60%	6008	3.97%
Medicare A	2052	2.95%	2494	2.89%	2074	1.37%
Medicare B	11752	16.90%	15236	17.66%	38746	25.59%
Patient	633	0.91%	783	0.91%	2046	1.35%
HMO	7691	11.06%	9260	10.74%	18033	11.91%
Preferred Provider	30875	44.40%	38569	44.71%	60223	39.78%
Workers Comp	4449	6.40%	5216	6.05%	7972	5.27%
No Fault	58	0.08%	100	0.12%	221	0.15%
Other	7030	10.11%	8346	9.68%	12534	8.28%
Early Intervention	6	0.01%	6	0.01%	16	0.01%
School	29	0.04%	53	0.06%	108	0.07%
No Charge	66	0.09%	168	0.19%	285	0.19%
Auto Insurance	169	0.24%	230	0.27%	446	0.29%
Medicare C	101	0.15%	174	0.21%	327	0.22%
Education						
Desktop Version of PI - Education Responses						
# Answered	1787		1020		183	
1st - 8th grade	62	3.47%	38	3.73%	9	4.92%
Some high school	162	9.07%	120	11.26%	19	10.38%
High school diploma	565	31.62%	266	26.68%	64	34.97%
GED or equivalent	88	4.92%	39	3.82%	10	5.46%
Some college but no degree	385	21.54%	210	20.59%	36	19.67%
College degree (undergraduate)	307	17.18%	200	19.61%	28	15.30%
Postgraduate course work but no advanced degree	63	3.53%	38	3.73%	10	5.46%
Postgraduate degree (college Masters, Doctorate of Professional)	155	8.67%	109	10.69%	7	3.83%
WEB Version of PI - Education Responses						
# Answered	1307		1585		1435	
Less Than 1st Grade	1	0.08%	8	0.50%	5	0.35%
1st, 2nd, 3rd Or 4th Grade	12	0.92%	11	0.69%	11	0.77%
5th Or 6th Grade	18	1.38%	29	1.80%	19	1.31%
7th Or 8th Grade	43	3.29%	64	3.98%	58	4.01%
9th Grade	40	3.06%	49	3.05%	40	2.76%
10th Grade	25	1.91%	48	2.99%	61	4.21%
11th Grade	32	2.45%	48	2.99%	61	4.21%

12th Grade No Diploma	29	2.45%	55	3.42%	51	3.52%
High School Grad-Diploma or Equiv (GED)	212	16.22%	251	15.61%	245	16.92
Some College But No Degree	307	23.49%	382	23.76%	309	21.53%
Associate Degree- Occupational/Vocational	59	4.51%	88	5.47%	79	5.46%
Associate Degree-Academic Program	45	3.44%	83	5.16%	60	4.14%
Bachelor's Degree(ex:ba, ab, bs)	283	21.65%	284	17.66%	275	18.99%
Master's Degree(ex:MA, MS, MEng, MEd, MSW)	157	12.01%	157	9.76%	121	8.36%
Professional School Deg(ex:MD, DDS, DVM)	23	1.76%	22	1.37%	27	1.86%
Doctorate Degree(ex:PhD, EdD)	21	1.61%	29	1.80%	21	1.45%
Income						
# Answered	2354		2146		1272	
\$10,000 - 25,000	439	18.65%	380	17.71%	269	21.15%
\$25,000 - 50,000	625	26.55%	556	25.91%	294	23.11%
\$50,000 - 75,000	490	21.82%	466	21.71%	256	20.13%
\$75,000 - 100,000	359	15.25%	328	15.28%	178	13.99%
Over \$100,000	441	18.73%	416	19.38%	275	21.62%

SCIENTIFIC ACCEPTABILITY

1.5. Measured Entities by level of analysis and Data Source

Analysis	Data source (years)	Entities tested			
		Patients	Clinicians	Clinics	States
a. Test-retest reliability	2010	40	NR+	12	8
b. Internal consistency	2002-2004	949	NR+	81	20
c. Structural validity	2002-2004	949	NR+	81	20
d. Construct validity (sample 1)	2008-2010	13,071	NR+	669	27
e. Sensitivity to change (sample 1)	2008-2010	13,071	NR+	669	27
f. Responsiveness (sample 1)	2008-2010	13,071	NR+	669	27
d. Construct validity (sample 2)	2005-2007	21,896	NR+	291	30
e. Sensitivity to change (sample 2)	2005-2007	21,896	NR+	291	30
f. Responsiveness (sample 2)	2005-2007	21,896	NR+	291	30
g. Exclusions analysis	2011-2013	154155	10038	2339	48
h. Risk adjustment modeling	2000-2003	306,556	3447	552	40
i. Performance patient level	2005-2007	21,896	NR+	291	30
j. Performance individual clinician level	2011-2013				
	2011	26517	1336	576	37
	2012	33036	1591	669	41
	2013	60968	2823	1203	46
k. Performance clinic/group practice level	2011-2013				
	2011	28742	2231	462	36
	2012	35535	2636	520	40
	2013	64261	4470	936	46
l. Missing data	2011-2013				
	2011	69,639	5024	1375	40
	2012	84,346	6015	1559	45
	2013	149,250	9396	2311	50
+ NR=not reported					
*Clinicians with 10+ patients with FS measures at intake & discharge.					
**Clinics with 10+ patient per clinician for small clinics (up to 4 clinicians) or 40+ patients for large clinics (5 or more clinicians), with FS measures at intake & discharge					

Table 1.6a Characteristics of patients in test-retest reliability analysis

	Mean
Age (years)	67
Intake FS	38
	Percent
Female	62%
Any Surgery	25%
Comorbidities	20%
None	40%
1	20%
2 or 3	20%
4 or more	
Fear	80%
Payer Type	
Medicare B	40%
Patient	0%
HMO	40%
PPO	0%
WC	20%

Table 1.6b Characteristics of patients in internal consistency analysis

Characteristic	Knee (n= 949)
Other	0
Age (mean \pm SD, min, max in years)	47 \pm 17, 14, 89
Age 14 to <45 (%)	44
Age 45 to 65 (%)	41
Age \geq 65 (%)	15
Gender (% female)	61
Acuity of symptoms (%)	
Acute	16
Subacute	29
Chronic	54
Surgical history (%)	
None	78
One or more	22
Exercise History (%)	
At least 3 \times /week	37
1–2 \times /week	25
Seldom or never	38
Medication use (%)	64
Payer Source (%)	
Indemnity	9
Medicaid	2
Medicare	15
Patient private pay	1
HMO	34
PPO	16
Workers' compensation	14
Other	9

Table 1.6c Characteristics of patients in analyses d-f (sample 1)

Age (mean \pm SD, min, max in years)	53	17	18	96
Age category (%)				
Age 18 to <45				30
Age 45 to 65				42
Age >65 to 75				18
Age >75				10
% female				58
Acuity of Symptoms (%)				
Acute (0 to 21 days)				24
Subacute (22-90 days)				28
Chronic (>90 days)				48
Surgical History (%)				
None				43
One or more				57
Missing				0

Payer Source (%)	
Indemnity Insurance	3
Litigation	1
Medicaid	1
Medicare A	4
Medicare B	19
Patient private pay	1
Health Maintenance Organization	10
Preferred Provider Organization	43
Workers' Comp	8
Auto Insurance	1
Other	11
Number of Functional Comorbidities (%)	
None	35
One	25
Two	17
Three or more	23
Fear of Avoidance	
No fear	57
Intimidated	43

Table 1.6d Characteristics of patients in analyses d-f (sample 2)

Age (mean 6 SD, min, max in years)	50 ±17, 18, 95
Age category (%)	
Age 18 to <45	33
Age 45-65	39
Age >65	19
Missing	9
Gender (% female)	55
Missing	9
Acuity of symptoms (%)	
Acute (<21 days)	18
Subacute (22-90 days)	28
Chronic (>90 days)	45
Missing	9
Surgical history (%)	
None	46
One	39
Two	9
Three	3
Four or more	3
Missing	<1
Exercise history (%)	
At least 3x/wk	40
1e2x/wk	24
Seldom or never	36
Missing	0
Payer source (%)	
Indemnity	3
Litigation	1
Medicaid	2
Medicare part B	10
Patient private pay	1
HMO	11
PPO	15
Workers' compensation	6

Other Missing	4 50
Number of functional comorbidities (%)	
None	24
One	23
Two	19
Three or more	30
Missing	4

Table 2b3.2a Sensitivity analysis of exclusion criteria for age: Comparison of beta coefficients and R² of risk adjustment models predicting FS at discharge (Data combined 2011-2013)

Variable	Sample includes patients 14+ N=154155		Sample includes patients 18+ N=143787	
	Beta, CI	P	Beta, CI	P
Constant	60.7, 60.25 to 61.17	P<0.001	58.8, 58.32 to 59.32	P<0.001
Intake FS	0.5, 0.45 to 0.46	P<0.001	0.5, 0.46 to 0.47	P<0.001
Age (continuous)	(-)0.1, (-)0.15 to (-)0.14	P<0.001	(-)0.1, (-)0.12 to (-)0.11	P<0.001
Acuity:				
0-7 days (REF)				
8-14 days	(-)2.1, (-)2.49 to (-)1.73	P<0.001	(-)2.2, (-)2.58 to (-)1.77	P<0.001
15-21 days	(-)3.2, (-)3.53 to (-)2.82	P<0.001	(-)3.3, (-)3.64 to (-)2.89	P<0.001
22-90 days	(-)4.3, (-)4.65 to (-)4.03	P<0.001	(-)4.4, (-)4.68 to (-)4.03	P<0.001
91 days to 6 months	(-)5.6, (-)5.90 to (-)5.21	P<0.001	(-)5.4, (-)5.72 to (-)5.01	P<0.001
Over 6 months	(-)7.1, (-)7.38 to (-)6.78	P<0.001	(-)6.9, (-)7.21 to (-)6.59	P<0.001
Gender:				
Male (REF)				
Female	(-)2.4, (-)2.51 to (-)2.22	P<0.001	(-)2.3, (-)2.47 to (-)2.17	P<0.001
Payer:				
Indemnity				
Insurance	(-)0.2, (-)0.75 to 0.42	0.573	(-)0.1, (-)0.75 to 0.46	0.64
Litigation	(-)4.8, (-)7.32 to (-)2.26	P<0.001	(-)4.3, (-)6.86 to (-)1.78	0.001
Medicaid	(-)4.7, (-)5.14 to (-)4.30	P<0.001	(-)5.7, (-)6.21 to (-)5.26	P<0.001
Medicare A	(-)1.3, (-)1.81 to (-)0.84	P<0.001	(-)1.6, (-)2.13 to (-)1.16	P<0.001
Medicare B	(-)1.0, (-)1.20 to (-)0.78	P<0.001	(-)1.3, (-)1.55 to (-)1.12	P<0.001
Patient	(-)1.0, (-)1.79 to (-)0.25	0.010	(-)0.9, (-)1.74 to (-)0.14	0.021
HMO	(-)0.4, (-)0.63 to (-)0.14	0.002	(-)0.4, (-)0.69 to (-)0.19	0.001
Preferred				
Provider (REF)				
Workers Comp	(-)5.7, (-)6.04 to (-)5.41	P<0.001	(-)5.4, (-)5.73 to (-)5.11	P<0.001
No Fault	(-)6.9, (-)8.90 to (-)4.83	P<0.001	(-)6.4, (-)8.50 to (-)4.39	P<0.001
Other	(-)1.3, (-)1.52 to (-)1.00	P<0.001	(-)1.3, (-)1.54 to (-)1.00	P<0.001
Early				
Intervention	(-)6.8, (-)14.09 to 0.52	0.069	(-)6.0, (-)13.52 to 1.50	0.117
School	(-)0.8, (-)3.63 to 2.01	0.573	(-)3.8, (-)7.07 to (-)0.44	0.026
No Charge	(-)2.1, (-)3.91 to (-)0.35	0.019	(-)1.6, (-)3.43 to 0.19	0.08
Auto Insurance	(-)3.7, (-)5.02 to (-)2.35	P<0.001	(-)3.8, (-)5.14 to (-)2.45	P<0.001

Medicare C	(-)1.0, (-)2.46 to 0.54	0.211	(-)1.3, (-)2.77 to 0.20	0.09
Surgical history:				
No surgery (REF)				
1 or more surgeries	1.0, 0.84 to 1.14	P<0.001	0.9, 0.71 to 1.02	P<0.001
Fear Avoidance- Physical:				
Not Elevated (REF)				
Elevated	(-)0.9, (-)1.09 to (-)0.81	P<0.001	(-)1.0, (-)1.15 to (-)0.86	P<0.001
Number of comorbidities:				
None (REF)				
One	(-)1.3, (-)1.59 to (-)1.07	P<0.001	(-)1.2, (-)1.51 to (-)0.95	P<0.001
Two	(-)2.1, (-)2.32 to (-)1.81	P<0.001	(-)2.1, (-)2.35 to (-)1.81	P<0.001
Three or more	(-)4.5, (-)4.68 to (-)4.24	P<0.001	(-)4.4, (-)4.63 to (-)4.17	P<0.001
Model R²	0.285		0.270	

Table 2b5.2.a Expected Performance at Each Functional Stage Level

	Stage I	Stage II	Stage III	Stage IV	Stage V	Stage VI
FS score range	0–19	20–29	30–37	38–47	48–62	>62
Activity	Physiologic ambulator	Limited household ambulator	Independent household ambulator	Limited community ambulator	Independent community ambulator	Active community ambulator
Running on even ground	Unable	Unable	Unable	Unable	Mod dif	A little dif
Walking for a mile	Unable	Unable	Unable	A lot of dif	A little dif	No dif
Walking 2 blocks	Unable	Unable	A lot of dif	Mod dif	A little dif	No dif
Walking between rooms	Unable	A lot of dif	Mod dif	A little dif	No dif	No dif

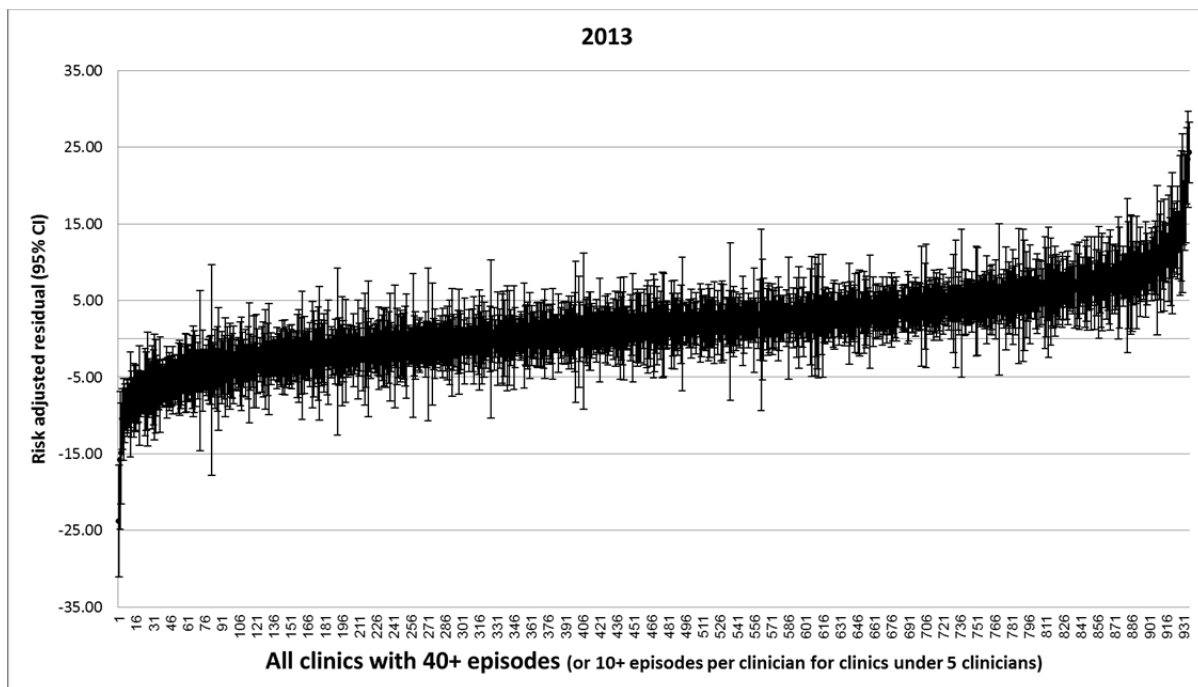
Table 2b5.2b Distribution of Clinician Performance Categories by Year

Year	Performance level	N Clinicians (%)
2011	Low performance	82 (6.1)
	Average performance	965 (72.2)
	High performance	289 (21.6)
	Total	1336 (100.0)
2012	Low performance	87 (5.5)
	Average performance	1168 (73.4)
	High performance	336 (21.1)
	Total	1591 (100.0)
2013	Low performance	188 (6.7)
	Average performance	2081 (73.7)
	High performance	554 (19.6)
	Total	2823 (100.0)

Table 2b5.2c Distribution of Clinic Performance Categories by Year

Year	Performance level	N Clinics (%)
2011	Low performance	45(9.7)
	Average performance	262(56.7)
	High performance	155(33.5)
	Total	462(100)
2012	Low performance	48(9.2)
	Average performance	293(56.3)
	High performance	179(34.4)
	Total	520(100)
2013	Low performance	94(10.0)
	Average performance	548(58.5)
	High performance	294(31.4)
	Total	936(100)

Figure 2b52a. Plot of aggregated residual scores with 95% CI bars in 2013



2b7.1. Impact of missing data

	Year	Complete data (group 1)			Missing data (groups 2&3)			P-value
		Total N	% missing		Total N	% missing		
Factors higher or more prevalent in patients with complete data								
Age (years): Mean(SD)	2011	51.5 (18.9)	35626	0.0%	47.4 (18.6)	15089	0.0%	<.001
	2012	51.8 (19.0)	44173	0.0%	47.4 (19.0)	20095	0.0%	<.001
	2013	54.0 (19.2)	77115	0.0%	48.4 (19.0)	38185	0.0%	<.001
Surgical history: 1 or more	2011	57.9%	35236	1.1%	46.5%	14899	1.3%	<.001
	2012	56.5%	43915	0.6%	45.4%	19982	0.6%	<.001
	2013	56.2%	77050	0.1%	42.2%	38121	0.2%	<.001
Payer: Medicare B age 60 or more	2011	18.4%	35448	0.5%	11.5%	15067	0.1%	<.001
	2012	19.4%	44066	0.2%	12.0%	20084	0.1%	<.001
	2013	27.5%	77115	0.0%	16.4%	38185	0.0%	<.001
Factors higher or more prevalent in patients with missing data								
Intake FS: Mean(SD)	2011	43.3 (14.5)	35626	0.0%	45.3 (15.6)	15089	0.0%	<.001
	2012	42.8 (14.5)	44173	0.0%	44.9 (15.4)	20095	0.0%	<.001
	2013	42.2 (14.4)	77115	0.0%	44.8 (15.4)	38185	0.0%	<.001
Payer: Medicaid	2011	3.5%	35448	0.5%	6.7%	15067	0.1%	<.001
	2012	3.1%	44066	0.2%	6.3%	20084	0.1%	<.001
	2013	2.8%	77115	0.0%	5.5%	38185	0.0%	<.001
High Fear Avoidance at intake (Physical)	2011	60.3%	35084	1.5%	62.6%	14831	1.7%	<.001
	2012	53.7%	43777	0.9%	54.1%	19962	0.7%	0.271
	2013	48.3%	76813	0.4%	50.6%	38075	0.3%	<.001
Factors with similar values or prevalence between patients with complete or missing data								
Number of comorbidities: Mean(SD)	2011	3.3 (2.8)	35570	0.2%	3.3 (2.9)	15058	0.2%	0.024
	2012	3.1 (2.9)	44161	0.0%	3.1 (3.0)	20088	0.0%	0.304
	2013	3.6 (3.1)	77109	0.0%	3.4 (3.2)	38175	0.0%	<.001
Acuity: Chronic - over 3 months	2011	48.7%	35609	0.0%	49.6%	15073	0.1%	0.047
	2012	48.6%	44161	0.0%	50.0%	20090	0.0%	0.001
	2013	50.4%	77073	0.1%	50.6%	38128	0.1%	0.506
Gender (Female)	2011	60.7%	35626	0.0%	60.5%	15089	0.0%	0.579
	2012	60.8%	44173	0.0%	60.6%	20095	0.0%	0.709
	2013	60.9%	77115	0.0%	60.3%	38185	0.0%	0.031
Payer: Medicare B age under 60	2011	1.6%	35448	0.5%	1.9%	15067	0.1%	0.003
	2012	1.5%	44066	0.2%	2.1%	20084	0.1%	<.001
	2013	2.2%	77115	0.0%	3.1%	38185	0.0%	<.001
Exercise history: 1 or more / week	2011	68.4%	34682	2.6%	68.8%	14696	2.6%	0.358
	2012	68.6%	43527	1.5%	68.9%	19820	1.4%	0.496
	2013	66.2%	76908	0.3%	67.7%	38109	0.2%	<.001
Difference not supporting potential for selection bias								
Differences supporting potential for selection bias								
Differences interpreted as not clinically important								

Table 2b7.2 a Summary of FS Data Collection at Admission and Discharge

Year at episode start	Patients at admission N=307970 Women: 60.6% Age (Mn; SD; Range): 50.9; 19.2; 14-113		Patients after 6 months from admission N=303235			
			Has DC FS + N (%)	Reason for Missing FS at DC N (%)		
	FS N (%)	FS missing* (NPA) N (%)	% represents CR	Open episode	NPA at DC	Unknown
2011	69639 (99.6)	281 (0.4)	35626 (51.2)	18924 (27.2)	1830 (2.6)	13259 (19.0)
2012	84346 (98.0)	1727 (2.0)	44173 (52.4)	20078 (23.8)	7216 (8.6)	12879 (15.3)
2013	149250 (98.2)	2727 (1.8)	77115 (51.7)	33950 (22.7)	20000 (13.4)	18185 (12.2)
Total	303235 (98.5)	4735 (1.5)	156914 (51.7)	72952 (24.1)	29046 (9.6)	44323 (14.6)

+Only data from closed episodes with status/discharge FS are included in the aggregate dataset for calculation of risk adjustment coefficients.

*FS missing at intake with NPA completed indicating reason for missing data

CR = Completion rate = Number of discharged patients who had FS at DC/ Number of patients who had FS at intake, includes episodes that are still “open”.

Table 2b7.2 b Mean and SD of of average number of patients in clinics (all clinics):

Year	N Clinics	Patients with intake FS data Mean N (SD)	Has DC FS		Does not have DC FS Mean N (sd)
			Mean N (SD)	Mean CR(SD)	
2011	1375	50.6 (72.3)	25.9 (41.7)	48.6 (30.6)	24.7 (38.3)
2012	1559	54.1 (77.9)	28.3 (46.9)	51.8 (30.2)	25.8 (39.8)
2013	2311	64.6 (89.2)	33.4 (50.9)	49.0 (28.3)	31.2 (46.5)

CR = Completion rate = Number of discharged patients who had FS at DC/ Number of patients who had FS at intake, includes episodes that are still “open”.

Table 2b7.2c Mean and SD of average number of patients in clinics with 40+ complete episodes per year (or 10+ complete episodes per clinician for clinics under 5 clinicians):

Year	N Clinics	Patients with intake FS data Mean N (SD)	Has DC FS		Does not have DC FS Mean N (sd)
			Mean N (SD)	Mean CR(SD)	
2011	462	108.4(95.2)	62.2(55.2)	61.7(18.6)	46.2(51.7)
2012	520	115.6(103.4)	68.3(63.6)	64.1(18.9)	47.2(51.9)
2013	936	120.4(114.1)	68.7(64.4)	62.2(17.1)	51.7(60.6)

CR = Completion rate = Number of discharged patients who had FS at DC/ Number of patients who had FS at intake, includes episodes that are still “open”.

Table 2b7.2 d Relationship between Clinic Aggregated Residual Score and Clinic Completion Rate (CR)

Pearson Correlations (r)			Clinic CR
2011	Residual	r	.012
		Sig. (2-tailed)	.793
		N clinics	462
2012	Residual	r	-.029
		Sig. (2-tailed)	.513
		N clinics	520
2013	Residual	r	.003
		Sig. (2-tailed)	.933
		N clinics	936

Table 2b7.2e Average residuals at the clinic level by completion rate categories

Year	CR category	Mean residuals	N clinics	Std. Deviation
2011	10 to <20	-.7*	4	8.7
	20 to <30	2.4	16	3.6
	30 to <40	1.5	39	4.2
	40 to <50	2.8	63	4.9
	50 to <60	2.2	84	4.2
	60 to <70	2.4	101	5.6
	70 to <80	1.8	83	4.9
	80 to <90	1.2	38	4.8
	90 to Highest	3.2	34	7.4
	Total	2.2	462	5.1
2012	10 to <20	1.9*	5	4.4
	20 to <30	3.1	12	5.2
	30 to <40	2.7	46	4.6
	40 to <50	2.8	57	4.7
	50 to <60	1.9	98	4.7
	60 to <70	2.0	95	3.9
	70 to <80	1.0	95	5.1
	80 to <90	1.9	67	4.7
	90 to Highest	3.3	45	7.1
	Total	2.1	520	4.9
2013	Lowest to <10	-1.6*	1	
	10 to <20	.9*	8	4.4
	20 to <30	1.6	26	5.4
	30 to <40	1.5	68	5.6
	40 to <50	2.4	105	4.6
	50 to <60	1.5	187	3.9
	60 to <70	1.6	223	4.3
	70 to <80	1.4	179	3.8

	80 to <90	1.3	90	5.2
	90 to Highest	2.5	49	6.6
	Total	1.6	936	4.5
CR = Completion rate = Number of discharged patients who had FS at DC/ Number of patients who had FS at intake, includes episodes that are still “open”. * Average residuals for CR categories that had less than 10 clinics				