

Hip Measure 0423

Table of Contents

Table of Contents	1
IMPORTANCE.....	2
Table 1b2a. Performance Scores for all Patients with Hip Impairments who were Discharged from Treatment in 2011-2013.....	2
Table 1b2b. Performance Scores for Patients with Hip Impairments who were Discharged from Treatment in 2011-2013 within Ranked Clinics 2011-2013	5
Table 1b.4 Disparities information for year 2011-2013	9
SCIENTIFIC ACCEPTABILITY	12
Table 1.5: Measured Entities by level of analysis and Data Source	12
Table 1.6a: Characteristics of Patients in Reliability Tests N=25.....	12
Table 1.6b: Characteristics of Patients in Structural Validity Analysis N=444.....	13
Table 1.6c Characteristics of patients in analyses d-f (sample 1).....	13
Table 1.6d Characteristics of patients in analyses d-f (sample 2) N=8714.....	14
Table 2b3.2a Sensitivity analysis of exclusion criteria for age: Comparison of beta coefficients and R^2 of risk adjustment models predicting FS at discharge (Data combined 2011-2013)	15
Table 2b5.2.a Functional Staging System: Expected Performance at Each Functional Stage Level.....	16
Table 2b5.2b Distribution of Clinician Performance Categories by Year	16
Table 2b5.2c Distribution of Clinic Performance Categories by Year.....	17
Figure 2b52a. Plot of aggregated residual scores with 95% CI bars in 2013.....	17
Table 2b7.1. Missing Data Analysis and Minimizing Bias	18
Table 2b7.2 a Summary of FS Data Collection at Admission and Discharge	19
Table 2b7.2 b Mean and SD of data completion by clinics (all clinics).....	19
Table 2b7.2 c Mean and SD of data completion by clinics with 40+ complete episodes per year (or 10+ complete episodes per clinician for clinics under 5 clinicians):	19
Table 2b7.2 d Relationship between Clinic Aggregated Residual Score and Clinic Completion Rate (CR)	20
Table 2b7.2e Average residuals at the clinic level by completion rate categories	20

IMPORTANCE

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

Year	2011		2012		2013	
# of intake patients	31566		41551		76049	
# completed episodes	14252		19586		33024	
# of clinics	1109		1268		1971	
# of providers	2233		2474		3585	
# of states	41		45		49	
FS Intake Measure						
Mean	48.50079		48.50556		48.06085	
Standard Deviation	15.93248		15.81428		15.58411	
Min	1.47		1.47		1.47	
Max	98.29		98.29		98.29	
Quartiles	38.14	Q1	38.26	Q1	37.97	Q1
	47.24	Q2	47.43	Q2	46.91	Q2
	57.94	Q3	58.09	Q3	57.93	Q3
Deciles	30.61	D1	30.90	D1	30.81	D1
	36.27	D2	36.38	D2	35.68	D2
	40.3	D3	40.32	D3	40.17	D3
	43.78	D4	43.78	D4	43.62	D4
	47.24	D5	47.43	D5	46.91	D5
	51.23	D6	51.47	D6	51.09	D6
	56.11	D7	56.14	D7	55.69	D7
	61.15	D8	61.21	D8	59.95	D8
	67.38	D9	67.37	D9	67.06	D9
FS Discharge Measure						
Mean	62.84546		62.85499		62.13197	
Standard Deviation	17.34378		17.61848		17.43221	
Min	1.88		1.47		1.47	
Max	99.31		100		98.29	
Quartiles	50.76	Q1	50.76	Q1	50.13	Q1
	60.13	Q2	61.22	Q2	59.78	Q2
	73.16	Q3	73.16	Q3	72.7	Q3
Deciles	42.68	D1	42.39	D1	42.03	D1
	48.21	D2	48.27	D2	47.68	D2
	52.63	D3	52.87	D3	52.25	D3
	56.32	D4	56.63	D4	56.14	D4
	60.13	D5	61.22	D5	59.78	D5

	65.64	D6	65.66	D6	64.87	D6
	70.09	D7	70.68	D7	69.44	D7
	76.91	D8	77.17	D8	76.14	D8
	93.67	D9	88.88	D9	87.79	D9
Patient FS Change						
Mean	14.76		15.13		14.56	
Standard Deviation	15.50		15.57		15.32	
Min	-59.95		-72.02		-68.67	
Max	96.41		96.41		96.82	
Quartiles	4.11	Q1	4.26	Q1	4.01	Q1
	12.42	Q2	12.98	Q2	12.33	Q2
	23.24	Q3	23.89	Q3	23.04	Q3
Deciles	-1.67	D1	-1.28	D1	-1.75	D1
	2.32	D2	2.44	D2	2.16	D2
	5.77	D3	6.1	D3	5.79	D3
	9.08	D4	9.55	D4	9.06	D4
	12.42	D5	12.98	D5	12.32	D5
	16.27	D6	16.68	D6	16.1	D6
	20.62	D7	21.21	D7	20.44	D7
	26.33	D8	27.01	D8	26.18	D8
	35.74	D9	35.99	D9	35.1	D9
Risk-Adjusted Patient FS Change - Residual						
Mean	0.38		1.12		1.12	
Standard Deviation	13.62		13.79		13.56	
Min	-63.40		-79.32		-76.52	
Max	67.86		63.34		63.77	
Quartiles	-8.69	Q1	-7.97	Q1	-7.87	Q1
	-1.19322	Q2	-0.25868	Q2	-0.22141	Q2
	8.04603	Q3	9.00175	Q3	8.80645	Q3
Deciles	-15.23	D1	-14.68	D1	-14.48	D1
	-10.4473	D2	-9.75368	D2	-9.67696	D2
	-7.16669	D3	-6.34844	D3	-6.24213	D3
	-4.10445	D4	-3.31493	D4	-3.15606	D4
	-1.19451	D5	-0.26204	D5	-0.22181	D5
	2.02452	D6	2.9888	D6	2.85072	D6
	5.75573	D7	6.75123	D7	6.59023	D7
	10.8082	D8	11.77177	D8	11.51882	D8
	18.81501	D9	19.52051	D9	19.30663	D9
Clinician FS Change Score						
Mean	15.01		15.23		14.30	
Standard Deviation	11.58		11.42		10.71	
Min	-37.97		-32.35		-38.33	

Max	85.53		89.26		72.85	
Quartiles	7.98	Q1	8.60	Q1	8.09	Q1
	13.78	Q2	14.33	Q2	13.64	Q2
	20.56	Q3	20.49	Q3	19.76	Q3
Deciles	2.08	D1	2.88	D1	2.40	D1
	6.49	D2	7	D2	6.59	D2
	9.32	D3	9.98	D3	9.33	D3
	11.57	D4	12.07	D4	11.63	D4
	13.76	D5	14.32	D5	13.63	D5
	16.23	D6	16.48	D6	15.75	D6
	18.83	D7	18.88	D7	18.23	D7
	22.59	D8	22.21	D8	21.39	D8
	29.02	D9	28.03	D9	26.36	D9
Risk Adjusted Aggregated Clinician Residual Score						
Mean	0.39		0.97		0.90	
Standard Deviation	10.22		10.14		9.55	
Min	-42.27		-45.89		-50.15	
Max	50.68		62.32		46.37	
Quartiles	-5.42	Q1	-4.80	Q1	-4.47	Q1
	-0.53756	Q2	0.62164	Q2	0.56812	Q2
	5.68965	Q3	6.03531	Q3	5.8822	Q3
Deciles	-10.74	D1	-10.11	D1	-9.76	D1
	-6.81201	D2	-6.21779	D2	-5.84387	D2
	-4.45284	D3	-3.57178	D3	-3.39418	D3
	-2.44128	D4	-1.36394	D4	-1.36678	D4
	-0.55159	D5	0.61707	D5	0.55926	D5
	1.67849	D6	2.40876	D6	2.60589	D6
	4.18807	D7	4.69833	D7	4.58819	D7
	7.02968	D8	7.60862	D8	7.26798	D8
	12.58889	D9	12.37554	D9	11.9637	D9
Clinic FS Change Score						
Mean	15.86		15.44		14.45	
Standard Deviation	10.47		10.26		8.83	
Min	-37.97		-20.90		-35.49	
Max	85.53		78.24		70.75	
Quartiles	10.23	Q1	10.07	Q1	9.78	Q1
	14.31	Q2	14.57	Q2	13.94	Q2
	19.91	Q3	19.33	Q3	18.17	Q3
Deciles	5.82	D1	5.34	D1	4.98	D1
	8.95	D2	9.02	D2	8.72	D2
	11.03	D3	11.11	D3	10.67	D3

	12.72	D4	12.91	D4	12.31	D4
	14.31	D5	14.57	D5	13.92	D5
	16.2	D6	16.08	D6	15.53	D6
	18.36	D7	18.09	D7	17.23	D7
	21.6	D8	20.89	D8	19.7	D8
	28.42	D9	26.76	D9	23.61	D9
Risk Adjusted Aggregated Clinic Residual Score						
Mean	0.59		0.72		0.80	
Standard Deviation	9.24		9.25		7.82	
Min	-38.09		-34.10		-38.71	
Max	50.68		50.60		42.76	
Quartiles	-4.51	Q1	-3.81	Q1	-3.08	Q1
	-0.27789	Q2	0.78207	Q2	0.75263	Q2
	4.71077	Q3	4.73275	Q3	4.57606	Q3
Deciles	-8.92	D1	-9.07	D1	-7.87	D1
	-5.48474	D2	-5.05266	D2	-4.4043	D2
	-3.40744	D3	-2.68305	D3	-2.30943	D3
	-1.7717	D4	-0.9411	D4	-0.66883	D4
	-0.27789	D5	0.78315	D5	0.73355	D5
	1.33418	D6	2.20021	D6	2.24062	D6
	3.24689	D7	3.77142	D7	3.62604	D7
	6.06776	D8	5.7101	D8	5.64439	D8
	11.7011	D9	10.05897	D9	9.11659	D9

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

Year	2011		2012		2013	
# of intake patients	10305		16921		28388	
# completed episodes	5748		9304		15050	
# of clinics	89		136		211	
# of providers	5		3		8	
# of states	24		26		29	
FS Intake Measure						
Mean	49.00172		50.18306		49.56435	
Standard Deviation	15.43349		15.57186		15.45967	
Min	1.47		1.47		1.47	
Max	98.29		98.29		98.29	
Quartiles	39.07	Q1	40.17	Q1	39.13	Q1
	47.86	Q2	49.18	Q2	48.3	Q2
	58.31	Q3	59.78	Q3	59.67	Q3
Deciles	31.37	D1	32.57	D1	31.45	D1

	36.76	D2	37.72	D2	37.25	D2
	40.96	D3	42.03	D3	41.29	D3
	44.31	D4	45.29	D4	44.53	D4
	47.86	D5	49.18	D5	48.3	D5
	52.21	D6	53.52	D6	52.72	D6
	56.19	D7	57.87	D7	56.63	D7
	61.46	D8	61.99	D8	61.62	D8
	67.37	D9	68.8	D9	67.4	D9
FS Discharge Measure						
Mean	63.15127		63.87508		63.75869	
Standard Deviation	17.1146		17.08438		17.05993	
Min	1.88		1.47		1.88	
Max	98.29		98.29		98.29	
Quartiles	51.13	Q1	51.79	Q1	51.79	Q1
	61.21	Q2	61.69	Q2	61.69	Q2
	73.16	Q3	74.73	Q3	74.73	Q3
Deciles	43.18	D1	43.74	D1	43.75	D1
	48.76	D2	49.26	D2	49.22	D2
	53.3	D3	53.63	D3	53.52	D3
	56.63	D4	57.79	D4	57.37	D4
	61.2	D5	61.69	D5	61.69	D5
	65.66	D6	66.54	D6	66.36	D6
	70.68	D7	71.43	D7	71.43	D7
	76.91	D8	77.79	D8	77.17	D8
	92	D9	88.88	D9	88.88	D9
Patient FS Change						
Mean	14.73		14.80		14.81	
Standard Deviation	15.29		15.31		15.37	
Min	-55.41		-60.57		-58.99	
Max	96.41		96.41		96.41	
Quartiles	4.15	Q1	3.93	Q1	4.19	Q1
	12.23	Q2	12.64	Q2	12.65	Q2
	23.19	Q3	23.62	Q3	23.41	Q3
Deciles	-1.53	D1	-1.52	D1	-1.72	D1
	2.32	D2	2.16	D2	2.23	D2
	5.83	D3	5.69	D3	5.95	D3
	9.03	D4	9.11	D4	9.38	D4
	12.22	D5	12.63	D5	12.65	D5
	16.35	D6	16.37	D6	16.51	D6
	20.54	D7	20.83	D7	20.9	D7
	25.84	D8	26.9	D8	26.65	D8
	35.44	D9	35.36	D9	35.6	D9

Risk-Adjusted Patient FS Change - Residual						
Mean	0.61		1.25		1.53	
Standard Deviation	13.45		13.46		13.45	
Min	-55.87		-58.59		-54.75	
Max	67.86		63.34		63.77	
Quartiles	-8.45	Q1	-7.88	Q1	-7.56	Q1
	-0.93463	Q2	-0.17266	Q2	0.23896	Q2
	8.21282	Q3	9.25429	Q3	9.38138	Q3
Deciles	-14.97	D1	-14.30	D1	-14.18	D1
	-10.21	D2	-9.6763	D2	-9.39013	D2
	-6.96161	D3	-6.32392	D3	-5.93011	D3
	-3.94173	D4	-3.23437	D4	-2.81699	D4
	-0.97347	D5	-0.17409	D5	0.23898	D5
	2.30648	D6	3.05361	D6	3.33657	D6
	5.85858	D7	6.91904	D7	7.11241	D7
	10.88963	D8	11.85243	D8	12.0608	D8
	18.58131	D9	19.09627	D9	19.71266	D9
Clinician FS Change Score						
Mean	15.05		10.82		12.06	
Standard Deviation	5.12		2.17		8.45	
Min	10.36		7.52		-1.15	
Max	24.73		13.63		23.61	
Quartiles	12.17	Q1	9.43	Q1	5.26	Q1
	12.44	Q2	10.4	Q2	12.6	Q2
	15.56	Q3	10.41	Q3	20.19	Q3
Deciles	10.36	D1	7.52	D1	-1.15	D1
	10.36	D2	7.52	D2	-1.15	D2
	10.36	D3	7.52	D3	-1.15	D3
	10.36	D4	7.52	D4	-1.15	D4
	10.36	D5	7.52	D5	-1.15	D5
	10.36	D6	7.52	D6	-1.15	D6
	10.36	D7	7.52	D7	-1.15	D7
	10.36	D8	7.52	D8	-1.15	D8
	10.36	D9	7.52	D9	-1.15	D9
Risk Adjusted Aggregated Clinician Residual Score						
Mean	-0.73		-2.22		0.67	
Standard Deviation	4.96		3.02		5.09	
Min	-6.95		-5.69		-7.10	
Max	7.73		1.94		6.10	
Quartiles	-3.95	Q1	-4.73	Q1	-5.72	Q1
	-1.19894	Q2	-4.53055	Q2	2.19905	Q2

	0.72163	Q3	-1.82	Q3	4.80428	Q3
Deciles	-6.95	D1	-5.69	D1	-7.10	D1
	-6.94734	D2	-5.69139	D2	-7.10017	D2
	-6.94734	D3	-5.69139	D3	-7.10017	D3
	-6.94734	D4	-5.69139	D4	-7.10017	D4
	-6.94734	D5	-5.69139	D5	-7.10017	D5
	-6.94734	D6	-5.69139	D6	-7.10017	D6
	-6.94734	D7	-5.69139	D7	-7.10017	D7
	-6.94734	D8	-5.69139	D8	-7.10017	D8
	-6.94734	D9	-5.69139	D9	-7.10017	D9
Clinic FS Change Score						
Mean	14.42		14.73		14.96	
Standard Deviation	4.91		4.44		3.89	
Min	7.14		3.85		0.58	
Max	33.98		40.33		29.50	
Quartiles	11.24	Q1	12.54	Q1	12.72	Q1
	13.59	Q2	14.48	Q2	14.59	Q2
	16.77	Q3	16.24	Q3	16.94	Q3
Deciles	8.73	D1	10.30	D1	10.73	D1
	10.77	D2	11.84	D2	12.43	D2
	11.66	D3	12.79	D3	13.04	D3
	12.27	D4	13.55	D4	13.88	D4
	13.17	D5	14.39	D5	14.69	D5
	13.87	D6	14.96	D6	15.71	D6
	15.3	D7	15.67	D7	16.54	D7
	16.27	D8	16.38	D8	17.28	D8
	17.46	D9	18.33	D9	19.06	D9
Risk Adjusted Aggregated Clinic Residual Score						
Mean	0.32		1.21		1.59	
Standard Deviation	4.25		3.79		3.31	
Min	-8.76		-8.03		-8.49	
Max	19.44		22.60		14.48	
Quartiles	-2.21	Q1	-0.82	Q1	-0.34	Q1
	0.0227	Q2	1.26311	Q2	1.3805	Q2
	2.67266	Q3	3.15265	Q3	3.40635	Q3
Deciles	-4.33	D1	-2.90	D1	-2.39	D1
	-2.91061	D2	-1.69619	D2	-0.82526	D2
	-2.10654	D3	-0.71011	D3	0.04523	D3
	-1.40515	D4	0.21699	D4	0.93465	D4
	-0.39171	D5	1.068	D5	1.38058	D5
	0.3998	D6	1.62779	D6	2.18191	D6

	0.80248	D7	2.50557	D7	3.01455	D7
	2.05621	D8	3.18427	D8	3.81967	D8
	3.61441	D9	4.47478	D9	5.0941	D9

Table 1b.4 Disparities information for year 2011-2013

	Hip Impairments					
Year	2011		2012		2013	
# of intake patients	31566		41551		76049	
# completed episodes	14252		19586		33024	
# of clinics	1109		1268		1971	
# of providers	2233		2474		3585	
# of states	41		45		49	
Race Question						
# answered	1407		1057		650	
White	1243	88.34%	920	87.04%	550	84.62%
Black/African American	64	4.55%	65	6.15%	48	7.38%
Asian or Pacific Islander	21	1.49%	10	.95%	7	1.08%
American Indian, Aleut, Eskimo	17	1.21%	6	.57%	3	.46%
Other	62	4.41%	56	5.3%	42	6.46%
Gender						
Male	11127	35.25%	14406	34.67%	26468	34.82%
Female	20439	64.75%	27142	65.33%	49566	65.18%
Average Age	56		56.1		57.5	
Standard Deviation	19.1		19.14		19.1	
Min	14		14		14	
Max	100		110		104	
14-19	1301	6.36%	1736	6%	2502	5.95%
20-29	1132	5.54%	1524	6%	2206	5.25%
30-39	1722	8.425	2124	8%	3031	7.2%
40-49	2548	12.46%	3348	12%	4542	10.8%
50-59	3816	18.7%	5013	19%	7377	17.5%
60-69	4527	22.1%	5999	22%	9878	23.5%
70-79	3403	16.7%	4671	17%	8186	19.5%
80-89	1837	9%	2269	8%	3884	9.2%
90-99	155	.76%	238	1%	441	1.1%
100-109	3	.01%	10	.04%	7	.02%
	20444		26932		42054	
Payer Source						
# Answered	31512		41501		76048	
Indemnity Insurance	557	1.8%	720	1.73%	1078	1.42%

Litigation	24	.08%	26	.06%	65	.09%
Medicaid	1084	3.44%	1379	3.32%	2106	2.77%
Medicare A	1519	4.82%	1892	4.56%	1529	2.01%
Medicare B	7660	24.3%	10246	24.7%	25761	33.9%
Patient	288	0.91%	375	.9%	1058	1.4%
HMO	3473	11.0%	4515	10.9%	8258	10.9%
Preferred Provider	12847	40.8%	17281	41.6%	28771	37.8%
Workers Comp	827	2.6%	962	2.3%	1440	1.9%
No Fault	17	.05%	50	.12%	86	.11%
Other	3043	9.7%	3756	9.05%	5290	7%
Early Intervention	1	0.00%	2	0.0%	1	0.0%
School	0	.0%	14	.03%	21	.03%
No Charge	21	.07%	51	.1%	111	0.15%
Auto Insurance	89	.28%	121	.29%	275	.26%
Medicare C	62	.2%	111	0.27%	198	0.26%
Education						
Desktop Version of PI - Education Responses						
# Answered	700		368		62	
1st - 8th grade	30	4.3%	13	3.5%	2	3.2%
Some high school	50	7.1%	33	9%	10	16.1%
High school diploma	238	34%	104	28.3%	23	37.1%
GED or equivalent	31	4.4%	8	2.2%	2	3.2%
Some college but no degree	115	16.4%	79	21.5%	9	14.5%
College degree (undergraduate)	128	18.3%	75	20.4%	7	11.3%
Postgraduate course work but no advanced degree	25	3.6%	16	4.4%	2	3.2%
Postgraduate degree (college Masters, Doctorate of Professional)	83	11.9%	40	10.9%	7	11.3%
WEB Version of PI - Education Responses						
# Answered	678		648		579	
Less Than 1st Grade	3	.44%	6	.93%	3	.53%
1st, 2nd, 3rd Or 4th Grade	7	1.03%	6	.93%	4	.69%
5th Or 6th Grade	6	.88%	8	1.23%	8	1.38%
7th Or 8th Grade	15	2.2%	19	2.9%	21	3.6%
9th Grade	22	3.2%	13	2.0%	25	4.3%
10th Grade	20	3.0%	20	3.1%	12	2.1%
11th Grade	13	1.9%	9	1.4%	15	2.6%
12th Grade No Diploma	13	1.9%	21	3.2%	18	3.1%
High School Grad-Diploma or Equiv (GED)	90	13.3%	91	14.0%	75	13.0%

Some College But No Degree	131	19.3%	141	21.8%	122	21.1%
Associate Degree- Occupational/Vocational	28	4.1%	28	4.3%	28	4.8%
Associate Degree-Academic Program	18	2.7%	30	4.6%	21	3.6%
Bachelor's Degree(ex:ba, ab, bs)	181	26.7%	150	23.2%	134	23.1%
Master's Degree(ex:MA, MS, MEng, MEd, MSW)	95	14.0%	82	12.7%	69	11.9%
Professional School Deg(ex:MD, DDS, DVM)	20	3.0%	9	1.4%	14	2.4%
Doctorate Degree(ex:PhD, EdD)	16	2.4%	15	2.3%	10	1.7%
Income						
# Answered	1035		812		478	
\$10,000 - 25,000	189	18.3%	126	15.5%	77	16.15
\$25,000 - 50,000	243	23.5%	177	21.8%	109	22.8%
\$50,000 – 75,000	238	23.0%	177	21.8%	83	17.4%
\$75,000 - 100,000	150	14.5%	130	16.0%	73	15.3%
Over \$100,000	215	20.8%	202	24.9%	136	28.5%

SCIENTIFIC ACCEPTABILITY

Table 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	25	NR+	7	NR
b. Internal consistency	2002-2004	444	NR+	81	20
c. Structural validity	2002-2004	444	NR+	81	20
d. Construct validity (sample 1)	2008-2010	5160	NR+	519	26
e. Sensitivity to change (sample 1)	2008-2010	5160	NR+	519	26
f. Responsiveness (sample 1)	2008-2010	5160	NR+	519	26
d. Construct validity (sample 2)	2005-2007	8714	NR+	257	31
e, f. Sensitivity, responsiveness (sample 2)	2005-2007	8714	NR+	257	31
g. Exclusions analysis	2011-2013	55244	8,078	2182	48
h. Risk adjustment modeling	2000-2003	306,556	3447	552	40
i. Performance patient level	2005-2007	8714	NR+	257	31
j. Performance individual clinician level	2011-2013				
	2011	3501	252	169	28
	2012	5235	375	229	33
	2013	11132	812	479	40
k. Performance clinic/group practice level	2011-2013				
	2011	3770	668	92	26
	2012	5192	869	140	27
	2013	10644	1679	287	36
l. Missing data	2011-2013				
	2011	23732	3989	1235	40
	2012	30267	4813	1429	44
	2013	56679	8022	2195	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 Reliability Tests N=25

Female	71%
Intake FS	39
Age (mean)	76 yr
Surgery	45%
Comorbidities	
None	33%
1	33%
2 or 3	23%
4 or more	11%
Elevated fear	67%
Payer	
MedicareB	62%
Patient	0%
HMO	12%
PPO	21%
WC	5%
Other	0%

Table 1.6b: Characteristics of Patients in Structural Validity Analysis N=444

Age (mean \pm SD, min, max in years)	54 \pm 17, 15, 88
Age category	
Age 14 to <45 (%)	29
Age 45 to 65 (%)	45
Age >65 (%)	26
Gender (% female)	70
Acuity of symptoms (%)	
Acute	13
Subacute	27
Chronic	60
Surgical history (%)	
None	93
One or more	7
Exercise History (%)	
At least 3 \times /week	34
1–2 \times /week	24
Seldom or never	41
Payer Source (%)	
Indemnity	11
Medicaid	2
Medicare	19
Patient private pay	0
HMO	43
PPO	15
Workers' compensation	6
Other	4

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

Characteristic			Value	
	mean	SD	min	max
Intake FS	46	16	3	97
Discharge FS	60	18	2	100
FSCH	15	16	-56	89
Risk-adjusted FSCH Predicted	15	4	2	30
Risk-adjusted FSCH Residual	0	14	-60	54
Age (mean \pm SD, min, max in years)	60	17	18	99
Age category				
Age 18 to <45 (%)			19	
Age 45 to 65 (%)			37	
Age >65 to 75 (%)			22	
Age >75 (%)			22	
Gender				
% female			64	
Acuity of Symptoms (%)				
Acute (0 to 21 days)			17	
Subacute (22-90 days)			26	
Chronic (>90 days)			57	

Surgical History (%)	None	65
	One or more	35
	Missing	0
Payer Source (%)	Indemnity Insurance	3
	Litigation	1
	Medicaid	1
	Medicare A	7
	Medicare B	28
	Patient private pry	1
	Health Maintenance Organization	10
	Preferred Provider Organization	36
	Workers' Comp	3
	Auto Insurance	1
	Other	11
Number of Functional Comorbidities (%) a	None	31
	One	22
	Two	17
	Three or more	30
Fear of Avoidance	No fear	54
	Intimidated	46

Table 1.6d Characteristics of patients in analyses d-f (sample 2) N=8714

Age, mean ± SD (range) (y)		56 ±17 (18–102)
Age category		
18 to <45 (%)		24
45 to 65 (%)		39
>65 (%)		30
Missing (%)		7
Sex (%)		
women		63
Missing		7
Acuity of symptoms (%)		
Acute (0–21d)		15
Subacute (22–90d)		26
Chronic (>90d)		52
Missing		7
Surgical history (%)		
None		74
One		18
Two		4
Three		1
Four or more		2
Missing		1
Exercise history (%)		
At least 3 times a week		21
1 to 2 times a week		12
Seldom or never		19
Missing		48
Payer source (%)		

Indemnity	2
Litigation	_1
Medicaid	2
Medicare part B	14
Patient private pay	_1
HMO	12
PPO	12
Workers' compensation	3
Other	4
Missing	51
Number of functional comorbidities (%)	
None	21
One	22
Three or more	35
Missing	3

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=55244		Sample includes patients 18+ N=53104	
	Beta, CI	P	Beta, CI	P
Constant	56.7 ,55.73 to 57.57	P<0.001	55.3, 54.27 to 56.24	P<0.001
Intake FS	0.5 ,0.53 to 0.55	P<0.001	0.5, 0.54 to 0.55	P<0.001
Age (continuous)	(-)0.2 ,(-)0.17 to (-)0.15	P<0.001	(-)0.1, (-)0.16 to (-)0.14	P<0.001
Acuity:				
0-7 days (REF)				
8-14 days	(-)1.3 ,(-)2.07 to (-)0.48	0.002	(-)1.1, (-)1.94 to (-)0.30	0.007
15-21 days	(-)2.2 ,(-)2.89 to (-)1.43	P<0.001	(-)2.1, (-)2.83 to (-)1.32	P<0.001
22-90 days	(-)4.0 ,(-)4.65 to (-)3.34	P<0.001	(-)3.7, (-)4.40 to (-)3.05	P<0.001
91 days to 6 months	(-)5.7 ,(-)6.36 to (-)5.00	P<0.001	(-)5.3, (-)6.03 to (-)4.63	P<0.001
Over 6 months	(-)6.9 ,(-)7.53 to (-)6.25	P<0.001	(-)6.5, (-)7.21 to (-)5.89	P<0.001
Gender:				
Male (REF)				
Female	(-)1.6 ,(-)1.80 to (-)1.32	P<0.001	(-)1.5, (-)1.73 to (-)1.24	P<0.001
Payer:				
Indemnity Insurance	0.7 ,(-)0.25 to 1.73	0.142	0.6, (-)0.44 to 1.56	0.274
Litigation	(-)2.1 ,(-)6.12 to 1.89	0.300	(-)2.3, (-)6.35 to 1.72	0.261
Medicaid	(-)4.0 ,(-)4.87 to (-)3.23	P<0.001	(-)4.1, (-)4.93 to (-)3.20	P<0.001
Medicare A	(-)1.6 ,(-)2.28 to (-)1.00	P<0.001	(-)1.8, (-)2.39 to (-)1.11	P<0.001
Medicare B	(-)1.5 ,(-)1.81 to (-)1.16	P<0.001	(-)1.6, (-)1.95 to (-)1.29	P<0.001
Patient	(-)0.3 ,(-)1.58 to 1.04	0.686	(-)0.4, (-)1.76 to 0.95	0.557
HMO	(-)0.6 ,(-)1.02 to (-)0.22	0.002	(-)0.7, (-)1.10 to (-)0.28	0.001
Preferred Provider (REF)				
Workers Comp	(-)5.1 ,(-)5.95 to (-)4.28	P<0.001	(-)4.9, (-)5.75 to (-)4.08	P<0.001
No Fault	(-)2.8 ,(-)7.08 to 1.56	0.210	(-)2.6, (-)6.93 to 1.67	0.23
Other	(-)1.0 ,(-)1.48 to (-)0.59	P<0.001	(-)1.0, (-)1.49 to (-)0.58	P<0.001
Early Intervention	(-)7.4 ,(-)33.61 to 18.86	0.582	(-)7.5, (-)33.65 to 18.59	0.572

School	3.3 ,(-)5.00 to 11.61	0.435	(-)0.9, (-)10.79 to 8.96	0.856
No Charge	(-)2.7 ,(-)5.70 to 0.37	0.085	(-)2.3, (-)5.31 to 0.81	0.15
Auto Insurance	(-)2.4 ,(-)4.51 to (-)0.22	0.030	(-)2.2, (-)4.34 to (-)0.04	0.046
Medicare C	(-)1.7 ,(-)3.78 to 0.44	0.121	(-)1.8, (-)3.88 to 0.32	0.097
Surgical history:				
No surgery (REF)				
1 or more surgeries	(-)0.7 ,(-)0.96 to (-)0.47	P<0.001	(-)0.7, (-)0.94 to (-)0.44	P<0.001
Fear Avoidance-Physical:				
Not Elevated (REF)				
Elevated	(-)0.9 ,(-)1.13 to (-)0.67	P<0.001	(-)0.9, (-)1.16 to (-)0.70	P<0.001
Number of comorbidities:				
None (REF)				
One	(-)1.3 ,(-)1.73 to (-)0.81	P<0.001	(-)1.2, (-)1.67 to (-)0.70	P<0.001
Two	(-)2.2 ,(-)2.68 to (-)1.81	P<0.001	(-)2.2, (-)2.66 to (-)1.76	P<0.001
Three or more	(-)4.4 ,(-)4.76 to (-)4.02	P<0.001	(-)4.3, (-)4.72 to (-)3.95	P<0.001
Model R²	0.370		0.354	

Table 2b5.2.a Functional Staging System: 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	26 (10.3)
	Average performance	201 (79.8)
	High performance	25 (9.9)
	Total	252 (100.0)
2012	Low performance	39 (10.4)
	Average performance	291 (77.6)
	High performance	45 (12.0)
	Total	375 (100.0)
2013	Low performance	61 (7.5)
	Average performance	693 (85.3)
	High performance	58 (7.1)
	Total	812 (100.0)

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

Year	Performance level	N Clinics (%)
2011	Low performance	5 (5.4)
	Average performance	65 (70.7)
	High performance	22 (23.9)
	Total	92 (100.0)
2012	Low performance	18 (12.9)
	Average performance	99 (70.7)
	High performance	23 (16.4)
	Total	140 (100.0)
2013	Low performance	21 (7.3)
	Average performance	216 (75.3)
	High performance	50 (17.4)
	Total	287 (100.0)

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

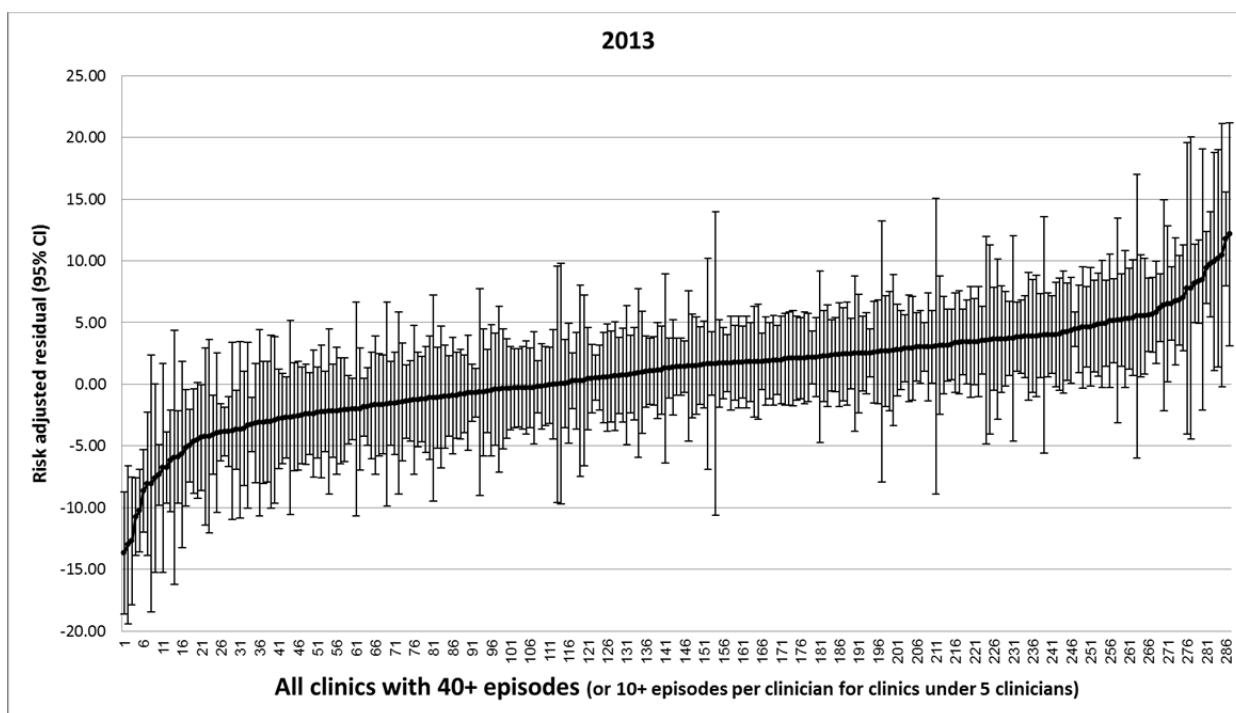


Table 2b7.1. Missing Data Analysis and Minimizing Bias

		Complete data (group 1)			Missing data (groups 2&3)			
Year		Total N	% missing		Total N	% missing		P-value
Factors higher or more prevalent in patients with complete data								
Age (years): Mean(SD)	2011	58.1 (18.2)	11970	0.0%	54.2 (18.6)	5411	0.0%	<.001
	2012	58.2 (18.2)	15600	0.0%	54.0 (18.9)	7782	0.0%	<.001
	2013	59.7 (18.0)	28711	0.0%	54.7 (18.8)	15192	0.0%	<.001
Surgical history: 1 or more	2011	39.1%	11850	1.0%	30.4%	5338	1.3%	<.001
	2012	38.0%	15522	0.5%	28.6%	7749	0.4%	<.001
	2013	38.0%	28671	0.1%	26.7%	15162	0.2%	<.001
Payer: Medicare B age 60 or more	2011	27.8%	11929	0.3%	19.8%	5408	0.1%	<.001
	2012	27.7%	15564	0.2%	20.0%	7778	0.1%	<.001
	2013	37.6%	28711	0.0%	26.0%	15192	0.0%	<.001
Factors higher or more prevalent in patients with missing data								
Intake FS: Mean(SD)	2011	47.6 (15.0)	11970	0.0%	48.7 (16.2)	5411	0.0%	<.001
	2012	47.0 (14.8)	15600	0.0%	48.7 (15.7)	7782	0.0%	<.001
	2013	46.8 (14.4)	28711	0.0%	48.6 (15.5)	15192	0.0%	<.001
Payer: Medicaid	2011	2.2%	11929	0.3%	4.1%	5408	0.1%	<.001
	2012	2.2%	15564	0.2%	4.5%	7778	0.1%	<.001
	2013	1.8%	28711	0.0%	3.9%	15192	0.0%	<.001
Factors with similar values or prevalence between patients with complete or missing data								
Number of comorbidities: Mean(SD)	2011	3.7 (2.9)	11952	0.2%	3.7 (3.0)	5396	0.3%	0.375
	2012	3.5 (2.9)	15594	0.0%	3.6 (3.1)	7780	0.0%	0.050
	2013	4.0 (3.1)	28711	0.0%	3.9 (3.2)	15189	0.0%	<.001
Acuity: Chronic - over 3 months	2011	57.6%	11963	0.1%	59.7%	5404	0.1%	0.009
	2012	56.3%	15597	0.0%	59.5%	7776	0.1%	<.001
	2013	58.0%	28684	0.1%	58.3%	15169	0.2%	0.616
Gender (Female)	2011	67.4%	11970	0.0%	67.0%	5411	0.0%	0.668
	2012	66.9%	15600	0.0%	68.4%	7782	0.0%	0.028
	2013	67.0%	28711	0.0%	67.3%	15192	0.0%	0.531
Payer: Medicare B age under 60	2011	1.4%	11929	0.3%	1.8%	5408	0.1%	0.109
	2012	1.7%	15564	0.2%	2.3%	7778	0.1%	0.001
	2013	2.3%	28711	0.0%	2.9%	15192	0.0%	<.001
High Fear Avoidance at intake (Physical)	2011	61.4%	11786	1.5%	62.2%	5317	1.7%	0.341
	2012	55.3%	15461	0.9%	55.0%	7739	0.6%	0.672
	2013	50.6%	28574	0.5%	51.2%	15143	0.3%	0.213
Exercise history: 1 or more / week	2011	68.3%	11612	3.0%	68.1%	5274	2.5%	0.850
	2012	69.0%	15331	1.7%	69.2%	7693	1.1%	0.848
	2013	66.8%	28628	0.3%	67.4%	15150	0.3%	0.204
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=112608 Women: 67.1% Age (Mn; SD; Range): 57.1; 18.5; 14-113		Patients after 6 months from admission N=110678			
			Has DC FS + N (%) % represents completion rate	Reason for Missing FS at DC N (%)		
	FS N (%)	FS missing* (NPA) N (%)		Open episode	NPA audit at DC	Unknown
2011	23732 (99.5)	114 (0.5)	11970 (50.4)	6351 (26.8)	719 (3.0)	4692 (19.8)
2012	30267 (97.9)	646 (2.1)	15600 (51.5)	6885 (22.7)	3033 (10.0)	4749 (15.7)
2013	56679 (98.0)	1170 (2.0)	28711 (50.7)	12776 (22.5)	8280 (14.6)	6912 (12.2)
Total	110678 (98.3)	1930 (1.7)	56281 (50.9)	26012 (23.5)	12032 (10.9)	16353 (14.8)

+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 data completion by 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	1235	19.2 (26.2)	9.7 (15.4)	47.4 (33.2)	9.5 (13.5)
2012	1429	21.2 (29.2)	10.9 (17.5)	50.6 (32.6)	10.3 (14.9)
2013	2195	25.8 (33.7)	13.1 (19.2)	49.2 (29.4)	12.7 (17.7)
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 c Mean and SD of data completion by 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 (Dataset1) Mean N (SD)	Has DC FS (Group 1)		Does not have DC FS Mean N (sd)
			Mean N (SD)	Mean CR(SD)	
2011	92	74.8 (46.3)	47.5 (27.5)	67.4 (15.9)	27.3 (24.0)
2012	140	71.1 (53.5)	45.6 (33.2)	68.1 (15.8)	25.6 (25.1)
2013	287	75.1 (59.0)	44.9 (33.4)	65.0 (15.1)	30.1 (30.4)
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”. (Group 1/ Dataset1)					

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

Pearson Correlations (r)			Clinic CR
2011	Residual	r	-.029
		Sig. (2-tailed)	.781
		N clinics	92
2012	Residual	r	.077
		Sig. (2-tailed)	.365
		N clinics	140
2013	Residual	r	-.096
		Sig. (2-tailed)	.103
		N clinics	287

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

Year	CR category	Mean residuals	N clinics	Std. Deviation
2011	30 to <40	6.3*	3	2.2
	40 to <50	4.5	10	5.0
	50 to <60	1.4	19	2.6
	60 to <70	-0.9	22	3.0
	70 to <80	3.0	16	5.6
	80 to <90	0.7	12	4.6
	90 to Highest	3.4	10	7.1
	Total	1.7	92	4.8
2012	20 to <30	1.8*	2	5.6
	30 to <40	3.7*	6	2.1
	40 to <50	0.1*	7	3.3
	50 to <60	0.5	23	3.7
	60 to <70	0.2	42	3.9
	70 to <80	0.9	31	3.8
	80 to <90	1.5	14	6.4
	90 to Highest	2.8	15	8.3
	Total	1.0	140	4.7
2013	20 to <30	3.6*	1	
	30 to <40	2.1	13	2.9
	40 to <50	1.1	36	3.0
	50 to <60	1.4	53	3.5
	60 to <70	0.7	74	3.6
	70 to <80	0.4	62	5.0
	80 to <90	0.2	34	4.3
	90 to Highest	1.2	14	4.6
	Total	0.9	287	3.9
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				