

# Shoulder Measure 0426

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# IMPORTANCE

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

	Orthopedic / Shoulder					
Year	2011		2012		2013	
# of intake patients	67875		83038		147134	
# completed episodes	30897		40303		65416	
# of clinics	1235		1419		2082	
# of providers	2854		3079		4255	
# of states	41		45		49	
<b>FS Intake Measure</b>						
Mean	49.9813		50.06247		50.19729	
Standard Deviation	15.14294		15.26899		16.36344	
Min	3.5		3.5		4.02	
Max	95.48		95.48		95.48	
<b>Quartiles</b>	42.53	Q1	43.11	Q1	40.59	Q1
	50.87	Q2	50.9	Q2	50.8	Q2
	58.67	Q3	58.67	Q3	61.29	Q3
<b>Deciles</b>	31.40	D1	31.37	D1	29.02	D1
	40.49	D2	40.85	D2	37.02	D2
	44.3	D3	44.96	D3	42.91	D3
	47.41	D4	47.5	D4	47.41	D4
	50.87	D5	50.9	D5	50.8	D5
	53.65	D6	54.53	D6	54.77	D6
	57.09	D7	57.13	D7	59.13	D7
	60.1	D8	60.02	D8	63.47	D8
	66.22	D9	65.82	D9	69.21	D9
<b>FS Discharge Measure</b>						
Mean	67.64388		67.50067		69.00831	
Standard Deviation	14.47944		14.73659		14.99172	
Min	4.65		4.65		1.38	
Max	100		100		100	
<b>Quartiles</b>	57.69	Q1	57.66	Q1	59.73	Q1
	66.04	Q2	65.69	Q2	68.77	Q2
	81.56	Q3	80.51	Q3	80.29	Q3
<b>Deciles</b>	49.97	D1	50.30	D1	49.65	D1
	55.55	D2	55.59	D2	57.11	D2
	59.16	D3	59.09	D3	61.74	D3
	62.36	D4	62.01	D4	65.41	D4
	66.04	D5	65.69	D5	68.77	D5

	72	D6	70.85	D6	72.73	D6
	77.67	D7	75.94	D7	76.37	D7
	81.94	D8	81.94	D8	81.89	D8
	90.71	D9	90.71	D9	90.89	D9
<b>Patient FS Change</b>						
<b>Mean</b>	18.34		18.22		19.86	
<b>Standard Deviation</b>	17.13		17.48		18.08	
<b>Min</b>	-82.02		-80.63		-82.59	
<b>Max</b>	90.83		90.83		99.99	
<b>Quartiles</b>	5.86	Q1	5.56	Q1	7.19	Q1
	15.71	Q2	15.34	Q2	17.38	Q2
	28.44	Q3	28.46	Q3	29.96	Q3
<b>Deciles</b>	0.00	D1	0.00	D1	0.00	D1
	3.81	D2	3.64	D2	4.94	D2
	7.93	D3	7.54	D3	9.19	D3
	11.72	D4	11.35	D4	13.31	D4
	15.71	D5	15.34	D5	17.37	D5
	20.25	D6	19.86	D6	21.71	D6
	25.29	D7	25.23	D7	26.82	D7
	31.74	D8	31.99	D8	33.51	D8
	41.25	D9	41.45	D9	43.79	D9
<b>Risk-Adjusted Patient FS Change - Residual</b>						
<b>Mean</b>	0.10		0.00		1.89	
<b>Standard Deviation</b>	13.33		13.57		13.44	
<b>Min</b>	-74.72		-70.88		-78.51	
<b>Max</b>	48.72		47.07		50.31	
<b>Quartiles</b>	-9.5	Q1	-9.5	Q1	-6.74	Q1
	-0.9	Q2	-1.5	Q2	1.7	Q2
	9.7	Q3	9.6	Q3	10.8	Q3
<b>Deciles</b>	-15.8	D1	-15.8	D1	-14.9	D1
	-11.2	D2	-11.2	D2	-9.0	D2
	-7.8	D3	-8.0	D3	-4.8	D3
	-4.6	D4	-4.9	D4	-1.4	D4
	-0.9	D5	-1.5	D5	1.7	D5
	3.1	D6	2.7	D6	5.0	D6
	7.3	D7	7.2	D7	8.7	D7
	12.1	D8	12.2	D8	13.2	D8
	18.2	D9	18.8	D9	19.4	D9
<b>Clinician FS Change Score</b>						
<b>Mean</b>	17.93		18.18		19.27	
<b>Standard Deviation</b>	11.59		12.14		11.40	
<b>Min</b>	-36.24		-80.63		-51.76	

<b>Max</b>	81.33		82.01		99.99	
<b>Quartiles</b>	10.64	Q1	10.91	Q1	12.68	Q1
	16.91	Q2	16.88	Q2	18.63	Q2
	23.83	Q3	24.13	Q3	25	Q3
<b>Deciles</b>	4.99	D1	5.09	D1	6.56	D1
	9.22	D2	9.33	D2	11.06	D2
	11.97	D3	12.12	D3	14.1	D3
	14.51	D4	14.51	D4	16.43	D4
	16.91	D5	16.88	D5	18.63	D5
	19.22	D6	19.4	D6	20.8	D6
	22.19	D7	22.43	D7	23.44	D7
	25.78	D8	26.08	D8	26.67	D8
	32.48	D9	32.59	D9	32.46	D9
<b>Risk Adjusted Aggregated Clinician Residual Score</b>						
<b>Mean</b>	-0.16		0.00		1.45	
<b>Standard Deviation</b>	9.41		9.72		9.06	
<b>Min</b>	-59.61		-70.88		-62.68	
<b>Max</b>	36.60		37.02		50.31	
<b>Quartiles</b>	-5.97	Q1	-5.89	Q1	-3.41	Q1
	-0.7	Q2	-0.6	Q2	1.5	Q2
	5.2	Q3	5.6	Q3	6.5	Q3
<b>Deciles</b>	-11.1	D1	-10.8	D1	-8.9	D1
	-7.4	D2	-7.1	D2	-4.8	D2
	-4.8	D3	-4.8	D3	-2.3	D3
	-2.8	D4	-2.6	D4	-0.3	D4
	-0.7	D5	-0.6	D5	1.5	D5
	1.5	D6	1.6	D6	3.2	D6
	3.9	D7	4.2	D7	5.2	D7
	7.0	D8	7.4	D8	7.9	D8
	11.8	D9	12.0	D9	11.9	D9
<b>Clinic FS Change Score</b>						
<b>Mean</b>	18.62		18.43		19.52	
<b>Standard Deviation</b>	9.54		10.29		8.82	
<b>Min</b>	-25.28		-41.13		-37.68	
<b>Max</b>	73.67		82.01		69.20	
<b>Quartiles</b>	12.96	Q1	12.80	Q1	14.64	Q1
	17.87	Q2	17.4	Q2	18.95	Q2
	23.46	Q3	23.39	Q3	23.9	Q3
<b>Deciles</b>	8.56	D1	8.30	D1	9.90	D1
	11.6	D2	11.78	D2	13.65	D2
	13.85	D3	13.74	D3	15.51	D3

	15.79	D4	15.49	D4	17.32	D4
	17.79	D5	17.39	D5	18.95	D5
	19.61	D6	19.68	D6	20.51	D6
	21.84	D7	21.84	D7	22.5	D7
	25.1	D8	24.98	D8	25.04	D8
	29.93	D9	29.93	D9	29.4	D9
<b>Risk Adjusted Aggregated Clinic Residual Score</b>						
<b>Mean</b>	0.24		0.11		1.53	
<b>Standard Deviation</b>	7.81		8.45		7.15	
<b>Min</b>	-38.44		-55.99		-51.80	
<b>Max</b>	33.69		32.07		32.04	
<b>Quartiles</b>	-4.5	Q1	-4.69	Q1	-2.1	Q1
	-0.2	Q2	-0.2	Q2	1.3	Q2
	4.5	Q3	5.0	Q3	5.4	Q3
<b>Deciles</b>	-8.7	D1	-8.8	D1	-6.4	D1
	-5.7	D2	-5.7	D2	-3.3	D2
	-3.7	D3	-3.9	D3	-1.4	D3
	-2.0	D4	-2.1	D4	0.1	D4
	-0.3	D5	-0.3	D5	1.3	D5
	1.4	D6	1.6	D6	2.7	D6
	3.3	D7	3.7	D7	4.4	D7
	6.0	D8	6.4	D8	6.5	D8
	9.7	D9	10.0	D9	9.3	D9

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

	Orthopedic / Shoulder					
<b>Year</b>	<b>2011</b>		<b>2012</b>		<b>2013</b>	
<b># of intake patients</b>	39300		49663		90255	
<b># completed episodes</b>	20252		27861		46367	
<b># of clinics</b>	252		304		531	
<b># of providers</b>	44		52		93	
<b># of states</b>	32		36		43	
<b>FS Intake Measure</b>						
<b>Mean</b>	50.1		50.1		50.4	
<b>Standard Deviation</b>	14.6		14.8		16.3	
<b>Min</b>	3.5		3.98		4.65	
<b>Max</b>	95.48		95.48		95.48	
<b>Quartiles</b>	43.11	Q1	43.19	Q1	40.76	Q1
	50.88	Q2	51.38	Q2	51.34	Q2
	58.62	Q3	58.67	Q3	61.45	Q3

<b>Deciles</b>	31.94	D1	31.60	D1	29.07	D1
	41.04	D2	41.04	D2	37.03	D2
	44.96	D3	45.16	D3	43.11	D3
	47.48	D4	48.04	D4	47.69	D4
	50.88	D5	51.38	D5	51.34	D5
	54.47	D6	54.76	D6	55.13	D6
	57.09	D7	57.12	D7	59.39	D7
	60	D8	59.99	D8	63.56	D8
	65.72	D9	64.39	D9	69.22	D9
<b>FS Discharge Measure</b>						
Mean	67.5		67.1		69.2	
Standard Deviation	14.3		14.4		14.8	
Min	4.65		4.65		1.38	
Max	100		99.82		100	
<b>Quartiles</b>	57.73	Q1	57.52	Q1	60.17	Q1
	65.75	Q2	64.14	Q2	68.77	Q2
	80.51	Q3	77.85	Q3	79.77	Q3
<b>Deciles</b>	50.45	D1	50.39	D1	50.39	D1
	56.2	D2	55.59	D2	57.39	D2
	59.29	D3	58.99	D3	62.24	D3
	62.28	D4	61.62	D4	66.4	D4
	65.75	D5	64.14	D5	68.77	D5
	70.9	D6	69.67	D6	72.86	D6
	75.94	D7	75.5	D7	76.43	D7
	81.94	D8	81.94	D8	81.89	D8
	90.71	D9	90.71	D9	90.89	D9
<b>Patient FS Change</b>						
Mean	18.03		17.71		19.95	
Standardred Deviation	16.78		17.26		18.04	
Min	-69.18		-80.63		-82.59	
Max	90.83		90.83		99.99	
<b>Quartiles</b>	5.72	Q1	5.26	Q1	7.32	Q1
	15.47	Q2	14.87	Q2	17.46	Q2
	28.05	Q3	27.88	Q3	29.98	Q3
<b>Deciles</b>	0.00	D1	-0.01	D1	0.00	D1
	3.77	D2	3.39	D2	5.13	D2
	7.67	D3	7.2	D3	9.27	D3
	11.5	D4	10.86	D4	13.37	D4
	15.47	D5	14.87	D5	17.46	D5
	19.87	D6	19.18	D6	21.81	D6
	24.98	D7	24.51	D7	26.84	D7
	31.11	D8	31.12	D8	33.52	D8
	40.72	D9	41.09	D9	43.9	D9

<b>Risk-Adjusted Patient FS Change - Residual</b>						
<b>Mean</b>	-0.05		-0.43		1.96	
<b>Standard Deviation</b>	13.15		13.33		13.26	
<b>Min</b>	-69.79		-70.88		-78.51	
<b>Max</b>	44.71		43.19		50.31	
<b>Quartiles</b>	-9.44	Q1	-9.72	Q1	-6.56	Q1
	-1.2	Q2	-2.1	Q2	1.9	Q2
	9.3	Q3	8.9	Q3	10.8	Q3
<b>Deciles</b>	-15.6	D1	-15.7	D1	-14.7	D1
	-11.1	D2	-11.3	D2	-8.7	D2
	-7.9	D3	-8.2	D3	-4.6	D3
	-4.8	D4	-5.3	D4	-1.2	D4
	-1.2	D5	-2.1	D5	1.9	D5
	2.7	D6	2.1	D6	5.1	D6
	7.0	D7	6.5	D7	8.7	D7
	11.8	D8	11.5	D8	13.1	D8
	17.9	D9	18.1	D9	19.0	D9
<b>Clinician FS Change Score</b>						
<b>Mean</b>	18.99		18.19		20.66	
<b>Standard Deviation</b>	5.62		5.20		5.34	
<b>Min</b>	9.77		9.16		8.87	
<b>Max</b>	45.63		30.62		34.83	
<b>Quartiles</b>	15.51	Q1	13.70	Q1	16.73	Q1
	18.48	Q2	17.43	Q2	20.2	Q2
	20.89	Q3	21.47	Q3	23.73	Q3
<b>Deciles</b>	13.25	D1	12.34	D1	14.62	D1
	14.96	D2	13.18	D2	15.85	D2
	15.88	D3	14.43	D3	17.23	D3
	16.34	D4	15.37	D4	18.96	D4
	17.99	D5	16.93	D5	20.2	D5
	19.06	D6	17.84	D6	21.33	D6
	20.32	D7	20.02	D7	22.82	D7
	21.1	D8	21.41	D8	24.85	D8
	22.72	D9	24.17	D9	28.45	D9
<b>Risk Adjusted Aggregated Clinician Residual Score</b>						
<b>Mean</b>	-0.08		-0.66		1.74	
<b>Standard Deviation</b>	5.30		4.59		4.24	
<b>Min</b>	-6.91		-8.20		-5.89	
<b>Max</b>	26.47		13.01		13.08	
<b>Quartiles</b>	-3.09	Q1	-4.18	Q1	-1.76	Q1

	-1.7	Q2	-1.0	Q2	1.4	Q2
	1.8	Q3	1.5	Q3	5.2	Q3
<b>Deciles</b>	-5.19	D1	-5.89	D1	-3.28	D1
	-3.9	D2	-4.6	D2	-2.2	D2
	-2.9	D3	-3.4	D3	-1.2	D3
	-2.6	D4	-2.5	D4	0.2	D4
	-1.7	D5	-1.3	D5	1.4	D5
	-0.3	D6	-0.7	D6	2.2	D6
	0.7	D7	0.2	D7	3.6	D7
	1.9	D8	1.5	D8	6.1	D8
	4.6	D9	3.1	D9	7.5	D9
<b>Clinic FS Change Score</b>						
<b>Mean</b>	17.83		17.88		19.87	
<b>Standard Deviation</b>	5.04		5.31		4.50	
<b>Min</b>	7.29		2.78		7.77	
<b>Max</b>	43.20		41.36		35.85	
<b>Quartiles</b>	14.10	Q1	13.96	Q1	16.85	Q1
	17.74	Q2	17.1	Q2	19.41	Q2
	20.78	Q3	21.33	Q3	22.53	Q3
<b>Deciles</b>	11.58	D1	12.09	D1	14.50	D1
	13.42	D2	13.51	D2	16.15	D2
	14.91	D3	14.4	D3	17.33	D3
	16.24	D4	15.71	D4	18.31	D4
	17.71	D5	17.01	D5	19.42	D5
	18.85	D6	18.48	D6	20.44	D6
	20.01	D7	20.13	D7	21.86	D7
	21.68	D8	21.65	D8	23.46	D8
	24.49	D9	24.58	D9	25.5	D9
<b>Risk Adjusted Aggregated Clinic Residual Score</b>						
<b>Mean</b>	-0.16		-0.20		1.92	
<b>Standard Deviation</b>	4.58		4.70		3.76	
<b>Min</b>	-10.47		-14.42		-8.89	
<b>Max</b>	24.57		17.64		15.82	
<b>Quartiles</b>	-3.67	Q1	-3.56	Q1	-0.57	Q1
	-0.3	Q2	-1.1	Q2	1.4	Q2
	3.0	Q3	2.6	Q3	4.0	Q3
<b>Deciles</b>	-5.9	D1	-5.4	D1	-2.4	D1
	-4.1	D2	-4.1	D2	-1.1	D2
	-3.1	D3	-3.1	D3	-0.1	D3
	-1.6	D4	-2.0	D4	0.6	D4
	-0.5	D5	-1.1	D5	1.4	D5



	0.8	D6	0.2	D6	2.5	D6
	2.0	D7	1.4	D7	3.4	D7
	3.7	D8	3.3	D8	4.9	D8
	5.8	D9	6.5	D9	7.1	D9

For valid ranking purposes, in 2011-2013 FOTO recommended that a provider have at least 40 completed shoulder impairment episodes in each year.

**Table 1b4a Table of Patient Characteristics**

	Shoulder 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	
<b>Race Question</b>						
# answered	3073		2625		1578	
White	2637	85.8%	2185	83.24%	1280	81.12%
Black/African American	159	5.17%	180	6.86%	164	10.39%
Asian or Pacific Islander	45	1.46%	52	1.98%	27	1.71%
American Indian, Aleut, Eskimo	33	1.07%	18	.69%	11	.70%
Other	199	6.48%	190	7.24%	96	6.08%
<b>Gender</b>						
Male	31617	46.58%	38400	46.25%	67526	45.89%
Female	36,260	53.24%	44630	53.75%	79607	54.11%
<b>Average Age</b>	53.5		53.4		54.9	
<b>Standard Deviation</b>	16.8		17.0		17.2	
<b>Min</b>	13		14		14	
<b>Max</b>	100		100		103	
14-19	2138	4.94%	2906	5.33%	3962	4.86%
20-29	2380	5.49%	3072	5.63%	4365	5.35%
30-39	3877	8.95%	4730	8.67%	6272	7.69%
40-49	7506	17.33%	9385	17.21%	12407	15.21%
50-59	10790	24.91%	13175	24.16%	19068	23.37%
60-69	9323	21.52%	12091	22.17%	18938	23.21%
70-79	5273	12.17%	6696	12.28%	12110	14.84%
80-89	1885	4.35	2289	4.20%	4093	5.02%
90-99	145	.335	185	.34%	364	.455
100-109	2	0.00%	6	.01%	14	.02%
	43319		54535		81593	
<b>Payer Source</b>						

# Answered	67671		82912		147134	
Indemnity Insurance	1284	1.9%	1486	1.79%	2096	1.42%
Litigation	100	.15%	129	.16%	227	.15%
Medicaid	2487	3.68%	3038	3.66%	4432	3.015
Medicare A	2135	3.15%	2569	3.10%	2001	1.36%
Medicare B	11880	17.56%	15318	18.48%	38538	26.19%
Patient	634	0.94%	831	1.00%	2068	1.41%
HMO	7479	11.2%	8874	10.7%	16546	11.25%
Preferred Provider	27966	41.33%	34282	41.35%	55269	37.56%
Workers Comp	6383	9.43%	7588	9.155	12440	8.45%
No Fault	84	.12%	139	.17%	403	.27%
Other	6579	9.72%	7760	9.36%	11416	7.76%
Early Intervention	4	0.01%	7	0.01%	6	0.0%
School	13	.02%	29	.03\$	49	.03%
No Charge	55	.08%	141	.17%	262	0.18%
Auto Insurance	402	.59%	545	.66%	1085	.74%
Medicare C	86	.135	176	0.21%	296	0.20%
<b>Education</b>						
<b>Desktop Version of PI - Education Responses</b>						
# Answered	1698		1061		249	
1st - 8th grade	45	2.65%	18	1.70%	7	2.81%
Some high school	125	7.36%	86	8.11%	24	9.64%
High school diploma	557	32.8%	271	25.5%	95	38.2%
GED or equivalent	73	4.3%	51	4.8%	15	6.02%
Some college but no degree	383	22.5%	268	25.3%	50	20.1%
College degree (undergraduate)	288	17.0%	218	20.6%	44	17.7%
Postgraduate course work but no advanced degree	68	4.0%	50	4.7%	7	2.8%
Postgraduate degree (college Masters, Doctorate of Professional)	159	9.4%	99	9.3%	7	2.8%
<b>WEB Version of PI - Education Responses</b>						
# Answered	1290		1476		1292	
Less Than 1st Grade	5	.4%	11	.8%	3	.2%
1st, 2nd, 3rd Or 4th Grade	8	.6%	24	1.6%	9	.7%
5th Or 6th Grade	7	.5%	16	1.1%	13	1.0%
7th Or 8th Grade	24	1.9%	30	2.0%	28	2.2%
9th Grade	29	2.3%	25	1.7%	31	2.4%
10th Grade	27	2.15	40	1.7%	41	3.2%
11th Grade	33	2.6%	42	2.9%	44	3.4%
12th Grade No Diploma	43	3.3%	42	2.9%	48	3.7%

High School Grad-Diploma or Equiv (GED)	226	17.5%	255	17.3%	250	19.4%
Some College But No Degree	267	20.7%	325	22.0%	274	21.2%
Associate Degree- Occupational/Vocational	52	4.0%	59	4.0%	85	6.6%
Associate Degree-Academic Program	58	4.5%	70	4.7%	61	4.7%
Bachelor's Degree(ex:ba, ab, bs)	285	22.15	308	20.9%	236	18.3%
Master's Degree(ex:MA, MS, MEng, MEd, MSW)	161	12.5%	167	11.3%	117	9.1%
Professional School Deg(ex:MD, DDS, DVM)	37	2.9%	27	1.8%	21	1.6%
Doctorate Degree(ex:PhD, EdD)	28	2.25	35	2.4%	31	2.4%
<b>Income</b>						
<b># Answered</b>	2285		2143		1185	
\$10,000 - 25,000	378	16.5%	336	15.7%	242	20.4%
\$25,000 - 50,000	608	26.6%	517	24.1%	274	23.1%
\$50,000 – 75,000	447	19.6%	428	20.0	251	21.2%
\$75,000 - 100,000	362	15.8%	351	16.4%	170	14.4%
Over \$100,000	490	21.4%	511	23.9%	248	20.9%

**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	48	NR+	11	13
b. Internal consistency	2002	400	NR+	NR+	NR+
c. Structural validity	2002	400	NR+	NR+	NR+
d. Construct validity (sample 1)	2008-2010	14,063	NR+	707	26
e. Sensitivity to change (sample 1)	2008-2010	14,063	NR+	707	26
f. Responsiveness (sample 1)	2008-2010	14,063	NR+	707	26
d. Construct validity (sample 2)	2002	400	NR+	NR+	NR+
e, f. Sensitivity, responsiveness (sample 3)	NR+	30,987	NR+	518	30
g. Exclusions analysis	2011-2013	144823	10,274	2365	48
h. Risk adjustment modeling	2000-2003	306,556	3447	552	40
i. Performance patient level					
j. Performance individual clinician level	2011-2013				
	2011	24530	1236	545	37
	2012	30222	1518	681	41
	2013	54803	2670	1156	46
k. Performance clinic/group practice level	2011-2013				
	2011	27481	2269	448	35
	2012	33143	2696	526	40
	2013	58956	4535	918	46
l. Missing data	2011-2013				
	2011	68941	5227	1385	40
	2012	82506	6257	1577	44
	2013	144632	9857	2333	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=48**

Characteristics of Sample 1 (N=48)	Mean
Age (years)	56
Intake FS	53
	Percent
Female	50
Any Surgery	43
Comorbidities	
None	7
1	36
2 or 3	14
4 or more	43
Fear	80%

Payer Type	
Medicare B	29
Patient	0
HMO	21
PPO	43
WC	7
Other	0

**Table 1.6b: Characteristics of Patients in Structural Validity Analysis N=400**

Characteristics of Sample 2 (N=400)	
	Mean (sd) Min, Max
Age	53 (14 18-91)
Age category	Percent
18-<45	31
<45-<65	49
65+	20
Gender	
Female	36
Surgical history	
None	66
One or more	44
Race/Ethnicity	
Caucasian	78
African American	13
Hispanic	6
Asian	2
Other	1

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

Characteristics of Sample 3 (N=14,064)	Value			
	mean	SD	min	max
Intake FS	48	16	3	95
Discharge FS	67	14	3	100
FSCH	19	18	-52	79
Risk-adjusted FSCH Predicted	19	3	9	29
Risk-adjusted FSCH Residual	0	13	-65	37
Age	55	15	18	99
Age 18 to <45 %	24			
Age 45 to 65 (%)	49			
Age >65 to 75 %	17			
Age >75 %	10			
Missing %	0			
Gender				
female %	53			
Missing	0			

Acuity of Symptoms	
Acute (0 to 21 days)	18
Subacute (22-90 days)	28
Chronic (>90 days)	54
Missing	0
Surgical History %	
None	69
One or more	31
Missing	0
Payer Source %	
Indemnity Insurance	3
Litigation	1
Medicaid	1
Medicare A	4
Medicare B	18
Patient private pay	1
Health Maintenance Organization	10
Preferred Provider Organization	41
Workers' Comp	9
Auto Insurance	1
Other	11
Missing	0
Number of Functional Comorbidities %	
None	36
One	26
Two	16
Three or more	22
Missing	0
Fear of Avoidance	
No fear	56
Intimidated	44
Missing	0

*Abbreviations:* SD=standard deviation; min=minimum; max=maximum; FSCH=functional status change.

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

	Values
Age (y), mean+SD, range	53+15, 18–100
18 to +45 %	25 %
45 to 65%	47 %
>65 to 75%	14 %
>75 %	9 %
Missing %	5 %
Sex	
% female	51 %
Missing	5 %
Acuity of symptoms %	
Acute (0–21 days)	18 %
Subacute (22–90 days)	30 %
Chronic (>90 days)	47 %
Missing	5 %
Surgical history %	

None	70 %
1	25 %
2	3 %
3	1 %
4+	1 %
Missing	0 %
Exercise history	
At least 3 times per week	39%
1–2 times per week	26 %
Seldom or never	35 %
Missing	0 %
Payer source %	
PPO	36 %
HMO	12 %
Workers' compensation	11 %
Medicare part B	13 %
Indemnity	3 %
Medicaid	3 %
Medicare part A	4 %
Other	11 %
Missing	7 %
No. of functional comorbidities	
None or 1	34 %
2or3	29 %
4or5	18 %
6+	19%
Missing	0 %%

**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=144823		Sample includes patients 18+ N=139999	
	Beta, CI	P	Beta, CI	P
<b>Constant</b>	66.2, 65.67 to 66.75	P<0.001	65.5, 64.94 to 66.08	P<0.001
<b>Intake FS</b>	0.3, 0.30 to 0.31	P<0.001	0.3, 0.30 to 0.31	P<0.001
<b>Age (continuous)</b>	(-)0.1, (-)0.10 to (-)0.09	P<0.001	(-)0.1, (-)0.09 to (-)0.07	P<0.001
<b>Acuity:</b>				
0-7 days (REF)				
8-14 days	(-)1.7, (-)2.19 to (-)1.29	P<0.001	(-)1.8, (-)2.24 to (-)1.31	P<0.001
15-21 days	(-)2.7, (-)3.13 to (-)2.27	P<0.001	(-)2.7, (-)3.17 to (-)2.28	P<0.001
22-90 days	(-)4.1, (-)4.47 to (-)3.73	P<0.001	(-)4.1, (-)4.49 to (-)3.71	P<0.001
91 days to 6 months	(-)4.6, (-)4.99 to (-)4.22	P<0.001	(-)4.6, (-)4.99 to (-)4.19	P<0.001
Over 6 months	(-)5.9, (-)6.24 to (-)5.50	P<0.001	(-)5.8, (-)6.23 to (-)5.46	P<0.001
<b>Gender:</b>				
Male (REF)				
Female	(-)1.9, (-)2.04 to (-)1.76	P<0.001	(-)1.8, (-)1.99 to (-)1.71	P<0.001
<b>Payer:</b>				
Indemnity Insurance	1.0, 0.42 to 1.61	0.001	1.0, 0.38 to 1.60	0.001
Litigation	(-)3.8, (-)5.65 to (-)2.03	P<0.001	(-)3.7, (-)5.54 to (-)1.90	P<0.001
Medicaid	(-)4.0, (-)4.42 to (-)3.49	P<0.001	(-)4.4, (-)4.88 to (-)3.90	P<0.001
Medicare A	(-)0.7, (-)1.19 to (-)0.24	P<0.001	(-)0.9, (-)1.36 to (-)0.42	P<0.001
Medicare B	(-)0.6, (-)0.78 to (-)0.36	P<0.001	(-)0.7, (-)0.96 to (-)0.54	P<0.001
Patient	(-)0.4, (-)1.16 to 0.31	0.257	(-)0.5, (-)1.26 to 0.25	0.193
HMO	0.1, (-)0.19 to 0.29	0.674	0.0, (-)0.25 to 0.25	0.998
Preferred Provider (REF)				
Workers Comp	(-)5.4, (-)5.67 to (-)5.16	P<0.001	(-)5.3, (-)5.56 to (-)5.05	P<0.001
No Fault	(-)6.7, (-)8.25 to (-)5.11	P<0.001	(-)6.7, (-)8.26 to (-)5.09	P<0.001
Other	(-)0.4, (-)0.69 to (-)0.17	P<0.001	(-)0.5, (-)0.73 to (-)0.19	P<0.001
Early Intervention	(-)1.7, (-)10.90 to 7.49	0.716	(-)2.6, (-)12.47 to 7.24	0.603
School	(-)1.3, (-)5.77 to 3.15	0.565	(-)1.6, (-)6.67 to 3.38	0.521
No Charge	(-)1.2, (-)3.07 to 0.62	0.195	(-)1.2, (-)3.05 to 0.70	0.219
Auto Insurance	(-)3.0, (-)3.83 to (-)2.16	P<0.001	(-)3.1, (-)3.93 to (-)2.24	P<0.001
Medicare C	1.1, (-)0.51 to 2.61	0.186	0.9, (-)0.70 to 2.43	0.278
<b>Surgical history:</b>				
No surgery (REF)				
1 or more surgeries	2.4, 2.23 to 2.56	P<0.001	2.4, 2.19 to 2.53	P<0.001
<b>Fear Avoidance-Physical:</b>				
Not Elevated (REF)				
Elevated	(-)0.4, (-)0.57 to (-)0.29	P<0.001	(-)0.4, (-)0.59 to (-)0.31	P<0.001
<b>Number of comorbidities:</b>				
None (REF)				
One	(-)1.1, (-)1.36 to (-)0.86	P<0.001	(-)1.1, (-)1.37 to (-)0.85	P<0.001
Two	(-)1.9, (-)2.14 to (-)1.66	P<0.001	(-)1.9, (-)2.16 to (-)1.66	P<0.001



Three or more	(-)3.8, (-)3.99 to (-)3.58	P<0.001	(-)3.8, (-)4.00 to (-)3.58	P<0.001
<b>Model R<sup>2</sup></b>	<b>0.171</b>		<b>0.159</b>	

**Table 2b5.2.a Shoulder Function Classification System**

Activity Level		Operational Definition	FS Score Range*
Level 1	Exceedingly limited shoulder	Unable to perform or limited a lot performing light routine activities using the affected arm like taking off glasses, flushing the toilet, turning a faucet or washing the face.	0-24
Level 2	Poor shoulder	Regained limited functioning and can perform light daily activities with some difficulty but still has much difficulty performing moderate upper extremity activities such as picking up and drink out of a full water glass, pulling a chair out from a table, and tightening a jar lid.	25-43
Level 3	Fair shoulder	Can perform light daily activities with little difficulty and moderate daily activities with some difficulty but still has much difficulty performing heavy upper extremity activities such as lowering a lightweight object from the top shelf of a closet and reaching an overhead shelf	44-59
Level 4	Good shoulder	Can perform routine daily activities using the affected arm with no difficulty but still good range of motion, muscle strength, and endurance such as reaching an overhead shelf, working overhead for more than 2 min, or touching an object on the back seat while sitting in the front seat of a car.	60-80
Level 5	Excellent shoulder	No difficulty using the affected arm to perform almost any rigorous activity.	81-100

**Table 2b5.2b Frequency Distribution of the Functional Staging Classification**

	Discharge FS Staging							
		1	2	3	4	5	Total	%
Intake FS staging	1	9	83	209	248	124	673	4.9
	2	7	299	1,095	1,253	505	3,159	22.9
	3	11	150	1,824	3,236	1,428	6,649	48.2
	4	3	10	279	1,510	1,189	2,991	21.7
	5	0	1	3	60	257	321	2.3
<b>Total</b>		30	543	3,410	6,307	3,503	13,793	100.0
<b>Percent (%)</b>		0.2	3.9	24.7	45.7	25.4	100.0	

**Table 2b5.2c: Distribution of Clinician Performance Categories by Year**

Year	Performance level	N Clinicians (%)
2011	Low performance	228 (18.4)
	Average performance	813 (65.8)
	High performance	195 (15.8)
	Total	1236 (100.0)
2012	Low performance	217 (14.3)
	Average performance	1057 (69.6)
	High performance	244 (16.1)
	Total	1518 (100.0)
2013	Low performance	192 (7.2)
	Average performance	1987 (74.4)
	High performance	491 (18.4)
	Total	2670 (100.0)

**Table 2b5.2d: Distribution of Clinic Performance Categories by Year**

Year	Performance level	N Clinics (%)
2011	Low performance	127 (28.3)
	Average performance	218 (48.7)
	High performance	103 (23.0)
	Total	448 (100)
2012	Low performance	134 (25.5)
	Average performance	265 (50.4)
	High performance	127 (24.1)
	Total	526 (100)
2013	Low performance	116 (12.6)
	Average performance	574 (62.5)
	High performance	228 (24.8)
	Total	918 (100)

**Figure 2b52. Plot of aggregated residual scores with 95% CI bars in 2013**

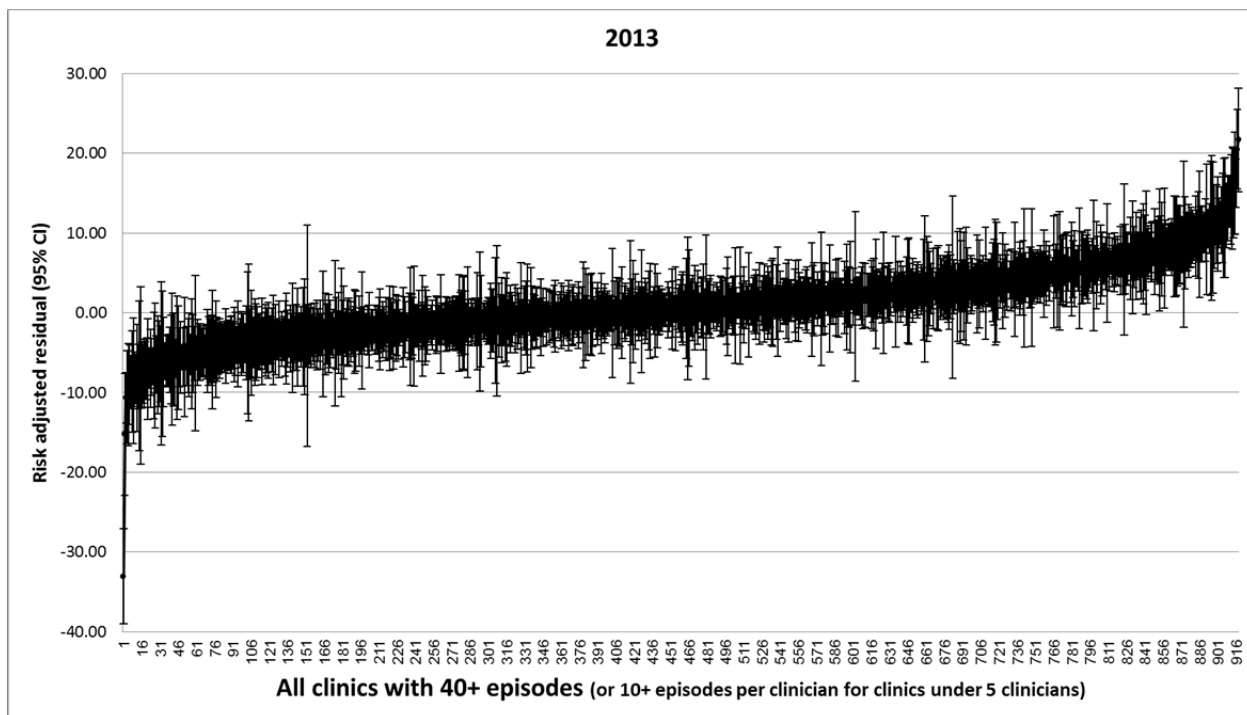


Table 2b7.1. Missing data

		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	54.1 (16.8)	34412	0.0%	50.9 (16.9)	14990	0.0%	<.001
	2012	54.1 (17.0)	41919	0.0%	50.9 (17.0)	20178	0.0%	<.001
	2013	56.2 (16.9)	71756	0.0%	51.5 (17.4)	39690	0.0%	<.001
Surgical history: 1 or more	2011	32.4%	34077	1.0%	25.0%	14813	1.2%	<.001
	2012	32.2%	41655	0.6%	24.0%	20083	0.5%	<.001
	2013	32.0%	71686	0.1%	21.5%	39641	0.1%	<.001
Payer: Medicare B age 60 or more	2011	18.4%	34234	0.5%	12.7%	14971	0.1%	<.001
	2012	19.4%	41803	0.3%	13.0%	20169	0.0%	<.001
	2013	27.4%	71756	0.0%	17.4%	39690	0.0%	<.001
Factors higher or more prevalent in patients with missing data								
Intake FS: Mean(SD)	2011	49.3 (14.9)	34412	0.0%	51.3 (14.5)	14990	0.0%	<.001
	2012	49.1 (15.1)	41919	0.0%	51.5 (14.4)	20178	0.0%	<.001
	2013	49.0 (16.2)	71756	0.0%	52.5 (15.8)	39690	0.0%	<.001
Payer: Medicaid	2011	2.7%	34234	0.5%	5.2%	14971	0.1%	<.001
	2012	2.5%	41803	0.3%	5.3%	20169	0.0%	<.001
	2013	2.1%	71756	0.0%	4.4%	39690	0.0%	<.001
Factors with similar values or prevalence between patients with complete or missing data								
Number of comorbidities: Mean(SD)	2011	3.3 (2.8)	34362	0.1%	3.4 (3.0)	14955	0.2%	<.001
	2012	3.1 (2.9)	41905	0.0%	3.2 (3.0)	20173	0.0%	<.001
	2013	3.6 (3.1)	71751	0.0%	3.4 (3.2)	39681	0.0%	<.001
Acuity: Chronic - over 3 months	2011	52.6%	34393	0.1%	52.1%	14978	0.1%	0.287
	2012	51.8%	41905	0.0%	52.4%	20171	0.0%	0.198
	2013	52.6%	71724	0.0%	51.3%	39648	0.1%	<.001
Gender (Female)	2011	53.3%	34412	0.0%	53.5%	14990	0.0%	0.671
	2012	53.5%	41919	0.0%	54.3%	20176	0.0%	0.073
	2013	54.8%	71756	0.0%	52.7%	39689	0.0%	<.001
Payer: Medicare B age under 60	2011	1.5%	34234	0.5%	2.0%	14971	0.1%	0.001
	2012	1.6%	41803	0.3%	2.2%	20169	0.0%	<.001
	2013	2.5%	71756	0.0%	3.2%	39690	0.0%	<.001
Exercise history: 1 or more / week	2011	67.8%	33485	2.7%	66.6%	14646	2.3%	0.011
	2012	68.8%	41278	1.5%	67.2%	19938	1.2%	<.001
	2013	66.7%	71567	0.3%	66.3%	39589	0.3%	0.163
High Fear Avoidance at intake (Physical)	2011	63.7%	33840	1.7%	64.4%	14732	1.7%	0.149
	2012	56.9%	41468	1.1%	56.6%	20019	0.8%	0.422
	2013	52.6%	71400	0.5%	52.4%	39533	0.4%	0.368
Difference not supporting potential for selection bias								
Differences supporting potential for selection bias								
Differences interpreted as not clinically important								

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

Year at episode start	Patients at admission N=300835		Patients after 6 months from admission N=303235			
			Has DC FS + N (%) % represents completion rate	Reason for Missing FS at DC N (%)		
	FS N (%)	FS missing* (NPA) N (%)		Open episode	NPA at DC	Unknown
2011	68941 (99.6)	272 (0.4)	34412 (49.9)	19539 (28.3)	1787 (2.6)	13203 (19.2)
2012	82506 (98.0)	1715 (2.0)	41919 (50.8)	20409 (24.7)	7202 (8.7)	12976 (15.7)
2013	144632 (98.1)	2769 (1.9)	71756 (49.6)	33186 (22.9)	20614 (14.3)	19076 (13.2)
<b>Total</b>	<b>296079 (98.4)</b>	<b>4756 (1.6)</b>	<b>148087 (50.0)</b>	<b>73134 (24.7)</b>	<b>29603 (10.0)</b>	<b>45255 (15.3)</b>

+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”.

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	1385	49.8 (69.5)	24.8 (39.1)	47.3 (30.6)	24.9 (38.0)
2012	1577	52.3 (74.3)	26.6 (43.8)	49.9 (29.9)	25.7 (39.1)
2013	2333	62.0 (82.0)	30.8 (44.9)	47.6 (27.4)	31.2 (44.1)
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)					

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 Mean N (SD)	Has DC FS		Does not have DC FS Mean N (sd)
			Mean N (SD)	Mean CR(SD)	
2011	448	109.4 (90.2)	61.3 (51.0)	59.9 (18.7)	48.0 (51.1)
2012	526	109.9 (99.3)	63.0 (59.9)	61.7 (18.6)	46.9 (51.4)
2013	918	117.2 (103.3)	64.2 (56.0)	59.4 (16.9)	53.0 (56.8)
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	-.006
		Sig. (2-tailed)	.891
		N clinics	448
2012	Residual	r	.004
		Sig. (2-tailed)	.936
		N clinics	526
2013	Residual	r	.030
		Sig. (2-tailed)	.370
		N clinics	918

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

Table 2b7.2e Average residuals at the clinic level by completion rate categories				
Year	CR category	Mean residuals	N clinics	Std. Deviation
<b>2011</b>	10 to <20	0.2*	7	3.8
	20 to <30	0.4	17	5.1
	30 to <40	1.1	48	4.6
	40 to <50	0.9	58	5.6
	50 to <60	-0.6	93	5.2
	60 to <70	-0.6	84	4.7
	70 to <80	-1.0	73	5.7
	80 to <90	-0.2	44	4.6
	90 to Highest	3.4	24	6.9
	<b>Total</b>	<b>0.0</b>	<b>448</b>	<b>5.3</b>
<b>2012</b>	10 to <20	5.5*	4	7.0
	20 to <30	2.1	18	4.5
	30 to <40	1.9	54	5.5
	40 to <50	0.4	64	5.0
	50 to <60	0.6	93	4.9
	60 to <70	-0.7	119	4.3
	70 to <80	-0.7	88	4.3
	80 to <90	0.0	49	5.5
	90 to Highest	5.9	37	7.5
	<b>Total</b>	<b>0.6</b>	<b>526</b>	<b>5.3</b>
<b>2013</b>	10 to <20	-0.1	10	4.7
	20 to <30	1.2	29	5.1
	30 to <40	1.6	80	4.3
	40 to <50	1.1	142	4.2
	50 to <60	0.7	214	3.9
	60 to <70	0.4	199	4.3
	70 to <80	0.2	134	4.2

	80 to <90	1.5	80	5.6
	90 to Highest	5.4	30	6.9
	<b>Total</b>	0.9	918	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				