



# **Utilization Trends in Inpatient Rehabilitation: Update Through Q 2: 2007**

September 2007

**THE MORAN COMPANY**

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### **EXECUTIVE SUMMARY**

The Moran Company was engaged by the Federation of American Hospitals, the American Hospital Association, and the American Medical Rehabilitation Providers Association to update prior analyses we had performed evaluating the impact of changes in provider qualification rules for inpatient rehabilitation facilities (IRFs) under Medicare. In this follow-on study, we have:

- Acquired data on discharges of IRF patients (from Medicare and other payers) through the end of the second quarter of 2007.
- Extended our prior analysis by acquiring data from both of the largest data benchmarking services used by IRFs (UDS<sub>MR</sub> and eRehabData®), which in 2005 were estimated to comprise 75% of all Medicare discharges.

The findings of this analysis confirm the results of our prior analyses. Specifically, we find that:

- Immediately following implementation of the Final Rule of May, 2004, the prior growth trend in IRF discharges ended, and volume declined steadily over all but one of the ensuing quarters.
- In the second quarter of calendar year 2007, Medicare caseload in our sample continued to decline. Medicare discharges in our sample fell to 66,997, the lowest level observed in our 22 quarters of data.
- In the four quarters ending Q 2: 2007, Medicare volume totaled 272,380, down 24.8% from the 362,128 discharges observed in the comparable period ending Q 2: 2004.
- As has been the case since 2004, this caseload decline is concentrated in about one third of the Rehabilitation Impairment Code (RIC) categories, particularly those areas that the Centers for Medicare and Medicaid Services (CMS) has indicated will be subject to the greatest degree of scrutiny in determining compliance with the “75% Rule.” However, we are also now seeing declining case loads in 16 of the 21 diagnostic categories, including some categories not targeted by CMS, such as strokes and spinal cord injuries. The remaining categories show modest growth, such as for some neurological cases, or no change in volume.
- Given the correlation between the stated policy and the concentrated impact of the caseload decline, it is difficult to reach the conclusion that this is a coincidence; the observed caseload decline in targeted cases is obviously the direct

consequence of the policy. The volume decreases for the non-targeted cases, such as strokes and spinal cord injuries, appear to be an unintended consequence of the policy.

## **Utilization Trends in Inpatient Rehabilitation: Update Through Q 2: 2007**

In May 2004, the Centers for Medicare and Medicaid Services (CMS) published a Final Rule implementing changes in its policies regarding the criteria used to determine which facilities are eligible to receive reimbursement as Inpatient Rehabilitation Facilities (IRFs).<sup>1</sup> In that rule, CMS implemented a three-year transition to full enforcement of the so-called “75 % Rule,” under which qualifying facilities would have to demonstrate that, by 2007, 75% of their admissions were for cases requiring intensive rehabilitation of impairments caused by one or more of thirteen qualifying conditions. Concerns about the potential impact of this policy induced Congress to stay reclassification of facilities based on the rule pending submission of a Government Accountability Office (GAO) study. Within sixty days after submission of that study, which occurred on April 22, 2005, CMS was required to determine whether to modify the Rule or to leave it in place without change.

After the report, CMS finalized its policy to require IRFs to meet the 75% rule test by July 1, 2007 (with a transition to that percentage during intervening years). In §5005 of the Deficit Reduction Act of 2005 (DRA), the Congress enacted a revised timeline for full implementation. Under the DRA policy, the 60% compliance threshold temporarily adopted by CMS in its Final Rule is extended for an additional year, effective July 1, 2006, followed by a 65% threshold beginning July 1, 2007. The threshold will be fully phased-in to 75% on July 1, 2008.<sup>2</sup>

The controversy over this policy, in part, results from disparities in early estimates of its impact. In its 2004 Final Rule, CMS projected a caseload change of only 1,170 admissions in FY 2005 — or roughly 0.2% of projected Medicare case volume. In early 2005, the Federation of American Hospitals prepared a series of estimates, based on time series data on actual experience during early FY 2005, suggesting that overall Medicare caseloads in rehabilitation hospitals and units might drop by as much as 25,000-40,000 annually.

In a prior study, The Moran Company was engaged to assess those estimates, and present findings of our own analysis of the data then available, through the first calendar quarter of 2005, from the UDS<sub>MR</sub> data service.<sup>3</sup> In subsequent reports, we expanded the analysis to include additional data from eRehabData®, and updated the analysis employing data through the second quarter of 2006.<sup>4</sup>

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<sup>1</sup> *Federal Register*, Vol. 69, No. 89 (Friday, May 7, 2004), pp. 25752-25776.

<sup>2</sup> The conference report accompanying the DRA notes that “The conferees encourage CMS to conduct additional research and study on this issue.” See House Report 109-362 at 212 (December 18, 2005).

<sup>3</sup> The Moran Company, *Estimating the Impact of Enforcement of the “75% Rule” on Inpatient Rehabilitation Services Volume*. (Arlington, VA, June 2005).

<sup>4</sup> The Moran Company, *New Estimates of the Impact of Enforcement of the “75% Rule” on Inpatient Rehabilitation Services Volume* (Arlington, VA, September 2005); *Utilization Trends In Inpatient Rehabilitation: Update Through Q 3: 2005*. (Arlington, VA, November 2005); *Utilization Trends in*

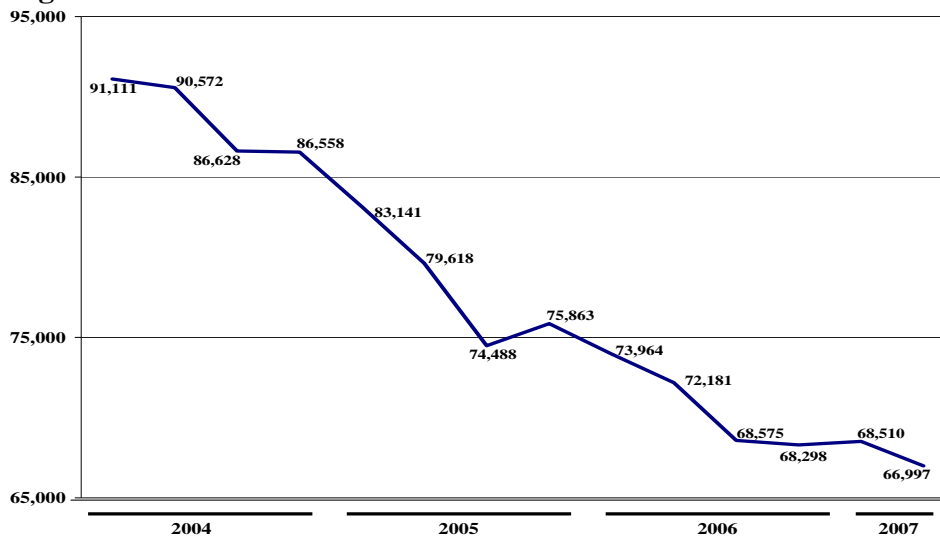
In September, 2007, we were engaged jointly by the Federation, the American Hospital Association, and the American Medical Rehabilitation Providers Association to update our analysis employing data on utilization through the second calendar quarter of 2007.

This report presents the findings of that analysis.

## **Data Employed in the Analysis**

We requested and received 22 quarters of confidential data. Both data services sent us data on only those providers who had participated continuously in the respective services for each of the twenty-one quarters ending with the second quarter of 2007 — i.e., so-called “same store” tabulations.<sup>5</sup> Because rehabilitation hospitals use only one data service at a time, the provider lists underlying these samples represent unduplicated counts of discharges.<sup>6</sup> In 2005, the last year for which complete claims data are available, the Medicare totals we are reporting based on these data sources comprised approximately 75% of all Medicare discharges.

**Figure One**



*Inpatient Rehabilitation: Update Through Q 4: 2005* (Arlington, VA, April 2006); *Utilization Trends in Inpatient Rehabilitation: Update Through Q 1: 2006* (Arlington, VA, June 2006); *Utilization Trends in Inpatient Rehabilitation: Update Through Q 2: 2006* (Arlington, VA, August 2006); *Utilization Trends in Inpatient Rehabilitation: Update Through Q 4: 2006* (Arlington, VA, February 2007); *Utilization Trends in Inpatient Rehabilitation: Update Through Q 1: 2007* (Arlington, VA, May 2007).

<sup>5</sup> Prior to completion of this analysis, we had the opportunity to compare the trends reflected in our data to a comparable trend analysis through 2005 prepared by The Lewin Group using Medicare claims data.

While the two data series show comparable volume declines in the 2004-2005 period, the Lewin estimates of “same store” volume growth over 2002-2004 were materially higher than the trend reflected in our data.

<sup>6</sup> Providers who changed data services during this period are, in general, eliminated from this analysis. One data service, however, includes data on newly enrolled providers if they have reported data on all 22 quarters.

### Overall Volume Trends

Figure One depicts the steady downward trend of IRF caseloads in Medicare since enforcement of the 75% Rule began. As the figure shows, immediately following implementation of the Final Rule of May, 2004, the prior growth trend in IRF discharges ended, and volume declined steadily over all but one of the ensuing quarters.

In the second quarter of calendar year 2007, Medicare caseload in our sample continued to decline. Medicare discharges in our sample fell to 66,997, the lowest level observed in our 22 quarters of data. In the four quarters ending Q 2: 2007, Medicare volume totaled 272,380, down 24.8% from the 392,128 discharges observed in the comparable period ending Q 2: 2004.

As shown in Figure Two, Medicare discharge volumes have been moving in tandem with the total discharge volume trend. This is hardly surprising, since the Medicare discharge volumes comprise nearly 66% of the total caseload volume in the data we analyzed for the four quarters ending with Q 2: 2007.

**Figure Two**

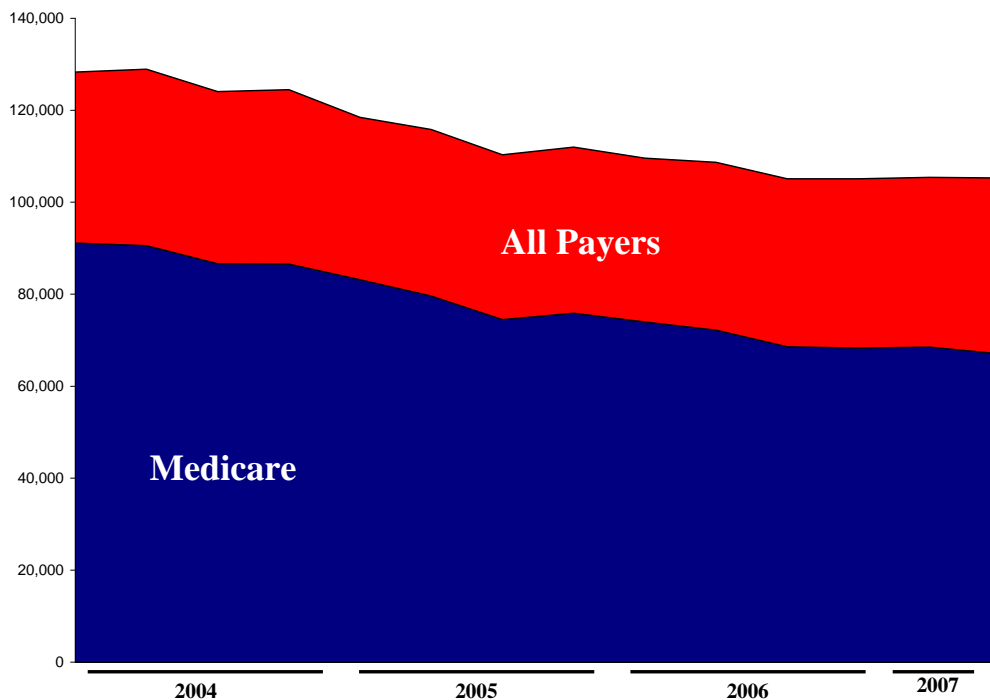
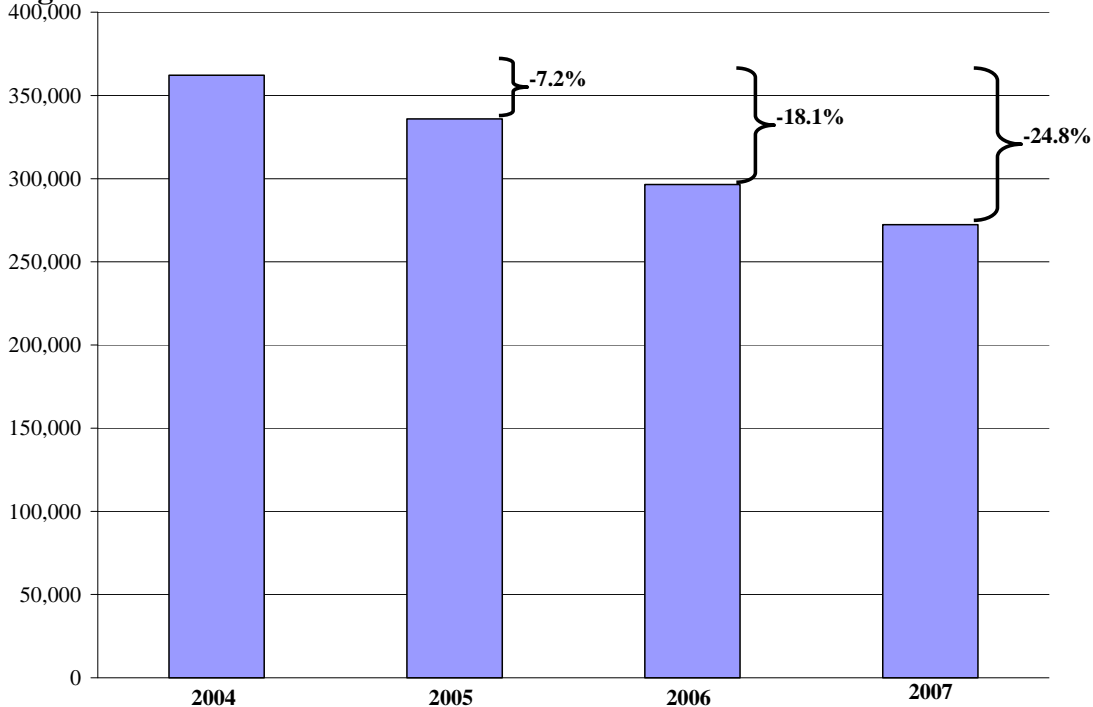


Figure Three presents a comparison of Medicare IRF discharges on a program year basis. As indicated in the figure, PY 2007 discharges are 24.8% lower than the level observed in these data for PY 2004, the first program year.

**Figure Three**



#### Trends by Diagnostic Type

The UDS<sub>MR</sub> and eRehabData® data we requested and received provide subsidiary volume detail by patient diagnosis. These data are presented by Rehabilitation Impairment Category codes, which are standard across the industry and are therefore uniform across these data sources.

Table One presents our analysis of the shift in volume by Rehabilitation Impairment Code (RIC). The table shows a comparison of the quarterly volume in the second quarter of 2007 to the second quarter in 2004.

Table One

## Volume Change by Rehabilitation Impairment Category

Q 2: 2007 versus Q 2 : 2004

RIC		2004 Q2	2007 Q2	Change
8	Replacement of LE joint	22,553	10,496	-12,057
20	Miscellaneous	11,298	7,208	-4,090
14	Cardiac	5,348	2,977	-2,371
9	Other orthopedic	5,006	3,874	-1,132
12	Osteoarthritis	1,290	366	-924
15	Pulmonary	1,909	996	-913
16	Pain Syndrome	1,714	854	-860
7	Fracture of LE	10,847	10,130	-717
5	Nontraumatic spinal cord	3,309	2,621	-688
1	Stroke	14,291	13,680	-611
10	Amputation, lower extremity	2,451	2,119	-332
13	Rheumatoid, other arthritis	742	417	-325
11	Amputation, other	228	103	-125
17	Major Multiple Trauma without CNS Damage	919	820	-99
4	Traumatic spinal cord	530	510	-20
19	Guillain Barre	125	122	-3
18	Major Multiple Trauma with CNS Damage	219	219	0
21	Burn	71	72	1
2	Traumatic brain injury	1,453	1,787	334
3	Nontraumatic brain injury	2,149	2,786	637
6	Neurological	4,120	4,840	720
	Total	90,572	66,997	-23,575

*Moran Company Analysis of Data Furnished by UDS<sub>MR</sub> and eRehabData®*

Overall, volume declined by 23,575 cases, or by 26.0%, over this period. As has been the case since 2004, this caseload decline is concentrated in about one third of the RIC categories, particularly those areas that CMS has indicated will be subject to the greatest degree of scrutiny in determining compliance with the “75% Rule.” As depicted in the last column of Table One, the five categories with the largest declines account for nearly 90% of the total decline in caseload in the second quarter of 2007, relative to the second quarter of 2004. Case loads are also beginning to decline in areas that are not targeted by CMS, such as stroke and spinal cord injuries. In other areas, such as neurological cases, that meet the diagnostic criteria CMS has established, caseload is growing.



## **Conclusion**

Summing up, the conclusions we draw from this analysis are as follows:

- Immediately following implementation of the Final Rule of May, 2004, the prior growth trend in IRF discharges ended, and volume declined steadily over all but one of the ensuing quarters.
- In the second quarter of calendar year 2007, Medicare caseload in our sample continued to decline. Medicare discharges in our sample fell to 66,997, the lowest level observed in our 22 quarters of data.
- In the four quarters ending Q 2: 2007, Medicare volume totaled 272,380, down 24.8% from the 362,128 discharges observed in the comparable period ending Q 2: 2004.
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### Inpatient Rehabilitation Discharges by Rehabilitation Impairment Category (RIC)

#### Discharges, All Payers

RIC	2002				2003				2004				2005				2006				2007		
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	
1	Stroke	21,702	22,495	21,790	21,841	21,689	21,885	21,486	21,655	21,792	21,506	21,478	21,661	22,538	22,700	21,786	22,169	22,946	22,929	21,952	22,152	22,885	22,795
2	Traumatic brain injury	2,906	3,136	3,275	3,357	2,992	3,189	3,495	3,466	3,171	3,508	3,881	3,957	3,688	3,871	4,318	4,288	4,095	4,069	4,375	4,253	3,993	4,282
3	Nontraumatic brain injury	3,325	3,546	3,491	3,594	3,610	3,744	3,645	3,788	4,031	4,051	4,224	4,177	4,438	4,903	4,720	4,841	4,968	5,037	5,054	5,039	5,341	5,272
4	Traumatic spinal cord	1,468	1,598	1,796	1,779	1,519	1,622	1,825	1,762	1,573	1,621	1,883	1,893	1,623	1,737	1,973	1,910	1,795	1,771	2,006	2,007	1,726	1,748
5	Nontraumatic spinal cord	4,509	4,834	4,672	4,943	4,728	5,034	5,217	5,318	4,813	5,119	5,212	5,125	4,853	4,993	4,812	4,847	4,695	4,639	4,557	4,639	4,450	4,605
6	Neurological	4,985	5,031	4,998	5,046	4,945	5,164	5,434	5,410	5,544	5,771	5,728	5,862	6,214	6,203	6,242	6,162	6,477	6,641	6,389	6,501	6,675	6,932
7	Fracture of LE	11,891	11,991	12,282	12,523	13,141	12,859	12,835	13,515	13,548	13,073	12,998	13,697	13,518	13,423	13,189	14,034	13,707	13,198	12,720	13,275	13,537	12,736
8	Replacement of LE joint	26,581	29,029	28,865	30,983	28,916	31,202	30,549	32,399	29,574	31,738	29,098	29,880	25,775	24,593	21,986	22,278	19,998	19,532	17,903	17,167	15,871	16,196
9	Other orthopedic	5,285	5,700	5,839	6,429	6,301	6,420	6,429	6,528	6,570	6,590	6,312	6,511	6,094	5,619	5,346	5,811	5,286	5,436	5,537	5,556	5,431	5,433
10	Amputation, lower extremity	3,254	3,453	3,467	3,172	3,306	3,403	3,461	3,295	3,387	3,519	3,416	3,361	3,313	3,514	3,615	3,260	3,324	3,481	3,431	3,218	3,256	3,373
11	Amputation, other	308	415	348	274	319	357	381	338	335	312	261	226	209	209	173	137	171	172	161	118	144	165
12	Osteoarthritis	1,903	1,741	1,737	1,757	1,709	1,776	1,697	1,516	1,408	1,516	1,107	830	716	732	585	541	566	513	518	403	426	404
13	Rheumatoid, other arthritis	969	1,029	979	1,047	943	1,046	1,038	1,085	1,076	962	850	770	717	688	698	614	596	603	583	538	517	553
14	Cardiac	6,003	6,295	5,925	6,310	6,441	6,442	6,001	6,269	6,331	6,116	5,456	5,381	4,841	4,225	3,639	3,698	3,774	3,692	3,332	3,612	3,754	3,704
15	Pulmonary	3,322	2,790	2,042	2,164	2,606	2,473	1,924	2,161	2,916	2,276	1,614	1,525	2,186	1,647	1,089	1,164	1,703	1,250	1,040	1,116	1,487	1,259
16	Pain Syndrome	2,389	2,655	2,572	2,824	2,628	2,651	2,541	2,421	2,348	2,287	2,332	2,175	1,682	1,697	1,585	1,528	1,321	1,438	1,396	1,215	1,245	1,225
17	Major Multiple Trauma without CNS damage	2,174	2,552	2,859	2,822	2,657	2,718	2,980	2,859	2,552	2,712	2,688	2,626	2,255	2,408	2,749	2,810	2,414	2,549	2,717	2,653	2,413	2,593
18	Major Multiple Trauma with CNS damage	1,144	1,365	1,568	1,635	1,306	1,472	1,716	1,640	1,454	1,566	1,779	1,807	1,313	1,575	1,739	1,705	1,502	1,603	1,643	1,666	1,470	1,627
19	Guillain Barre	405	375	368	370	418	365	387	404	414	372	337	318	402	440	404	377	398	414	394	455	443	417
20	Miscellaneous	12,822	13,152	13,554	14,136	14,772	14,131	13,871	14,020	15,217	14,046	13,151	12,481	11,849	10,368	9,421	9,575	9,608	9,428	9,140	9,284	10,125	9,696
21	Burn	188	231	204	211	215	225	220	229	241	264	264	223	217	270	256	253	228	287	250	223	229	264
		117,533	123,413	122,631	127,217	125,161	128,178	127,132	130,078	128,295	128,925	124,069	124,486	118,441	115,815	110,325	112,002	109,572	108,682	105,098	105,090	105,418	105,279

*Moran Company Analysis of Data Furnished by UDS<sub>MR</sub> and eRehabData®*

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**Inpatient Rehabilitation Discharges by Rehabilitation Impairment Category (RIC)**

**Discharges, Medicare**

RIC	2002				2003				2004				2005				2006				2007		
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	
1	Stroke	15,039	15,451	14,946	14,777	14,770	14,811	14,444	14,598	14,663	14,291	14,241	14,304	14,886	15,132	14,235	14,354	14,796	14,589	13,675	13,774	13,976	13,680
2	Traumatic brain injury	1,118	1,218	1,154	1,236	1,222	1,239	1,309	1,347	1,378	1,453	1,453	1,665	1,618	1,696	1,632	1,774	1,757	1,708	1,772	1,741	1,768	1,787
3	Nontraumatic brain injury	1,756	1,807	1,832	1,881	1,881	1,987	1,878	1,996	2,133	2,149	2,250	2,236	2,460	2,634	2,564	2,696	2,713	2,760	2,694	2,687	2,814	2,786
4	Traumatic spinal cord	487	531	534	503	451	518	530	487	507	530	563	551	504	537	543	550	543	488	514	554	511	510
5	Nontraumatic spinal cord	2,802	3,103	2,992	3,115	3,043	3,205	3,440	3,438	3,031	3,309	3,325	3,248	3,066	3,162	2,954	2,960	2,831	2,777	2,722	2,678	2,573	2,621
6	Neurological	3,608	3,627	3,519	3,648	3,507	3,721	3,844	3,820	3,966	4,120	4,159	4,356	4,564	4,486	4,518	4,462	4,595	4,685	4,524	4,601	4,683	4,840
7	Fracture of LE	10,030	10,065	10,188	10,530	10,885	10,711	10,661	11,327	11,317	10,847	10,771	11,323	11,235	11,141	10,943	11,636	11,295	10,740	10,340	10,694	10,777	10,130
8	Replacement of LE joint	19,068	20,519	20,520	21,704	20,293	21,842	21,633	22,972	21,019	22,553	21,152	21,442	18,583	17,467	15,842	15,813	14,007	13,541	12,296	11,647	10,502	10,496
9	Other orthopedic	4,029	4,241	4,352	4,834	4,752	4,845	4,862	4,966	4,964	5,006	4,826	4,880	4,541	4,144	3,912	4,293	3,885	3,920	3,957	3,946	3,861	3,874
10	Amputation, lower extremity	2,355	2,382	2,421	2,182	2,237	2,362	2,356	2,230	2,296	2,451	2,369	2,186	2,255	2,365	2,406	2,136	2,139	2,197	2,179	2,023	2,048	2,119
11	Amputation, other	231	294	258	196	224	259	270	235	234	228	186	162	160	141	111	83	119	114	98	82	91	103
12	Osteoarthritis	1,685	1,528	1,519	1,533	1,503	1,553	1,513	1,339	1,228	1,290	959	754	640	650	526	483	513	466	469	350	380	366
13	Rheumatoid, other arthritis	799	852	797	854	775	863	830	885	878	742	656	590	556	525	518	493	466	443	437	410	376	417
14	Cardiac	5,198	5,521	5,176	5,516	5,593	5,651	5,246	5,486	5,552	5,348	4,735	4,685	4,237	3,642	3,119	3,170	3,218	3,144	2,795	3,018	3,139	2,977
15	Pulmonary	2,811	2,295	1,697	1,790	2,174	2,037	1,619	1,817	2,463	1,909	1,362	1,273	1,845	1,352	893	975	1,412	1,027	840	907	1,166	996
16	Pain Syndrome	1,811	1,989	1,897	2,100	1,949	1,968	1,909	1,805	1,787	1,714	1,740	1,651	1,295	1,324	1,217	1,185	996	1,068	1,058	900	934	854
17	Major Multiple Trauma without CNS damage	877	990	985	1,081	989	1,007	1,013	1,002	941	919	881	863	776	737	827	945	784	836	838	863	792	820
18	Major Multiple Trauma with CNS damage	196	184	204	233	211	231	211	227	225	219	219	253	226	205	206	245	203	192	187	211	211	219
19	Guillain Barre	136	141	116	103	154	115	125	142	135	125	116	105	125	136	137	103	125	129	134	121	140	122
20	Miscellaneous	10,344	10,428	10,870	11,303	11,838	11,271	11,207	11,309	12,316	11,298	10,603	9,977	9,489	8,060	7,328	7,420	7,479	7,284	6,978	7,033	7,679	7,208
21	Burn	63	72	45	50	67	60	54	63	78	71	62	54	80	82	57	87	88	73	68	58	89	72
Total		84,443	87,238	86,022	89,169	88,518	90,256	88,954	91,491	91,111	90,572	86,628	86,558	83,141	79,618	74,488	75,863	73,964	72,181	68,575	68,298	68,510	66,997

*Moran Company Analysis of Data Furnished by UDS<sub>MR</sub> and eRehabData®*