

CHAPTER

9

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**Inpatient rehabilitation  
facility services**

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## R E C O M M E N D A T I O N

- 9** The Congress should eliminate the update to the Medicare payment rates for inpatient rehabilitation facilities in fiscal year 2013.

**COMMISSIONER VOTES: YES 17 • NO 0 • NOT VOTING 0 • ABSENT 0**

# Inpatient rehabilitation facility services

## Chapter summary

Inpatient rehabilitation facilities (IRFs) provide intensive rehabilitation services to patients after an injury, illness, or surgery. Rehabilitation programs at IRFs are supervised by rehabilitation physicians and include services such as physical and occupational therapy, rehabilitation nursing, prosthetic and orthotic services, and speech–language pathology. In 2010, almost 360,000 Medicare fee-for-service (FFS) beneficiaries received care in IRFs. Between 2009 and 2010, Medicare FFS expenditures for IRFs increased from \$6.03 billion to \$6.32 billion, largely due to a 2.25 percent update to the base payment rates in 2010, a 4.4 percent increase in outlier payments, and an increase in patient severity.

## Assessment of payment adequacy

Our indicators of Medicare payment adequacy for IRFs, discussed below, are generally positive.

**Beneficiaries’ access to care**—Our measures of access to care suggest that beneficiaries maintained access to IRF services in 2010.

- **Capacity and supply of providers**—The aggregate supply of IRFs remained relatively stable in 2010. IRF occupancy rates and the number of rehabilitation beds declined slightly, by 0.5 percent and 0.9 percent, respectively. The relative stability in provider supply and the number of

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available rehabilitation beds suggest that capacity remains adequate to meet demand. IRFs are not the sole provider of rehabilitation services in communities. The number of some types of patients treated in IRFs has declined, but data suggest that skilled nursing facilities (SNFs) and home health agencies have been able to fill in for IRFs and provide these beneficiaries with rehabilitation care.

- **Volume of services**—The volume of Medicare FFS beneficiaries treated in IRFs—as a measure of resources, or services, used—remained relatively stable in 2010. Our assessment of hospital discharge patterns to post-acute care settings suggests that beneficiaries who were not admitted to IRFs as a result of renewed enforcement of CMS’s compliance threshold beginning in 2004 were able to obtain rehabilitation care in other settings, such as SNFs and home health agencies.

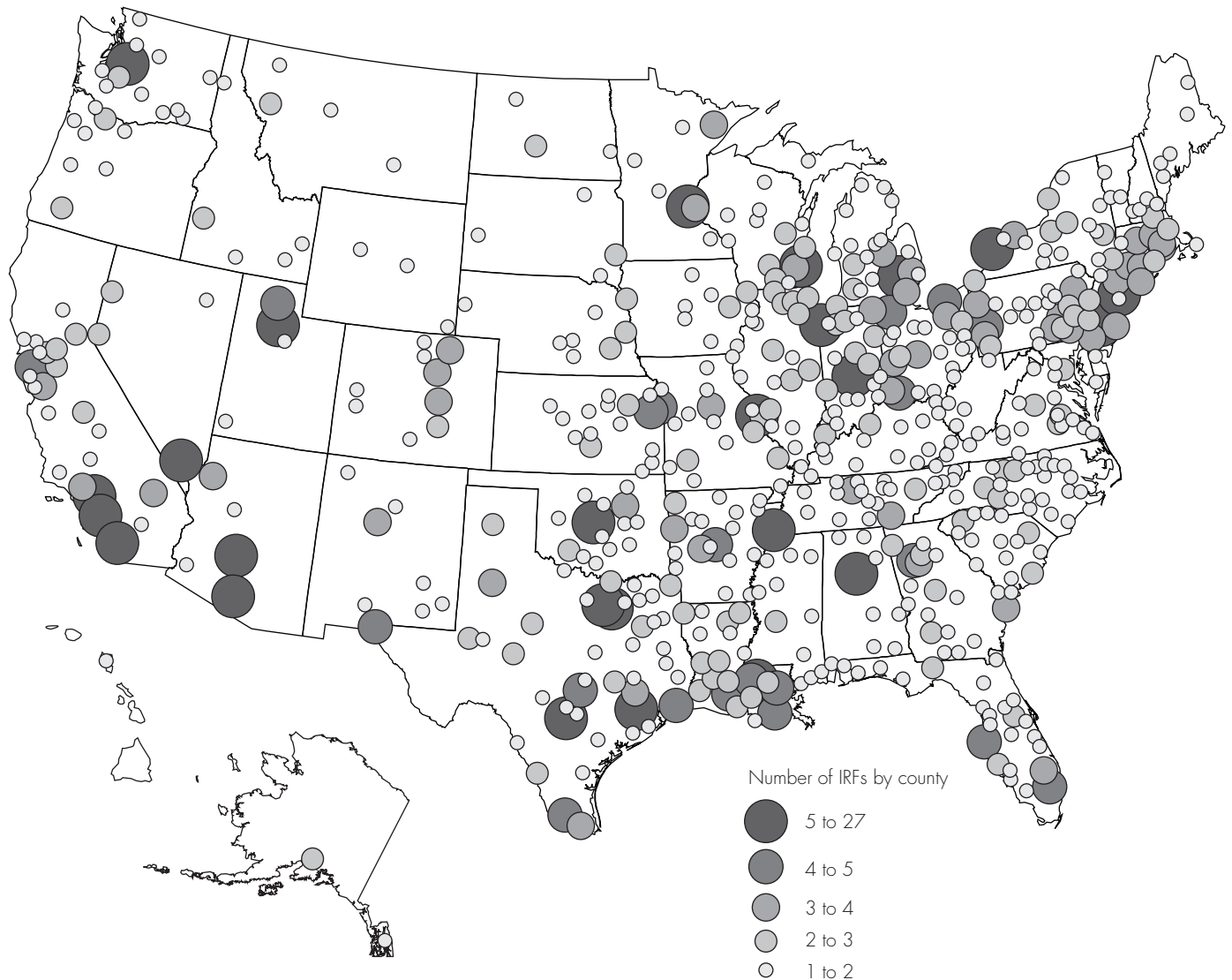
**Quality of care**—In previous Commission reports, we observed increases since 2004 in the scores used to measure improvement in patients’ functional ability between the time of IRF admission and discharge. However, we could not conclude that the observed higher scores represented true improvements in quality of care for Medicare IRF patients without controlling for the changes in patient mix that occurred concurrently due to renewed enforcement of the IRF compliance threshold beginning in 2004. To overcome this limitation, we contracted with researchers at RAND to develop risk-adjusted quality measures that would take into account the changes in IRF patient mix. The preliminary results of that analysis indicate that, from 2004 through 2009, some amount of real improvement occurred in IRF patients’ quality of care, as measured by functional improvement between admission and discharge; rates of discharge to the community; rates of discharge from an IRF directly to an acute care hospital; admission to an acute care hospital within 30 days of discharge to the community; and admission to a SNF within 30 days of discharge to the community. However, the results also indicate that quality of IRF care can be improved further. Ongoing refinements to the risk adjustment for these measures may produce different results.

**Providers’ access to capital**—Hospital-based IRF units have adequate access to capital through their parent institutions. One major freestanding IRF chain that accounts for about 50 percent of freestanding IRF revenues and 21 percent of revenues for the entire IRF industry also appears to have adequate access to capital. We were not able to determine the ability of independent freestanding facilities to raise capital.

**Medicare payments and providers’ costs**—Total Medicare payments to IRFs grew slightly faster than aggregate costs in 2010 due, in part, to an update to the 2010 base payment rates for IRFs. The aggregate Medicare margin for IRFs in 2010 was 8.8 percent. We project that the 2012 IRF Medicare margin will be 8.0 percent. ■

**FIGURE  
9-1**

**Geographic distribution of IRFs, 2010**



Note: IRF (inpatient rehabilitation facility).

Source: MedPAC analysis of 2010 Provider of Service files from CMS.

## Background

After an illness, injury, or surgery, some patients enter intensive rehabilitation programs at an inpatient rehabilitation facility (IRF) and receive services such as physical and occupational therapy and rehabilitation nursing in a coordinated, multidisciplinary manner. For these services to qualify for Medicare coverage, the care for IRF patients must be supervised by a rehabilitation physician, use an interdisciplinary approach to care, and

address a documented clinical need for therapy in at least two disciplines. IRFs may be specialized units within an acute care hospital or specialized freestanding hospitals, which tend to be larger. Approximately 80 percent of IRFs are hospital-based units; the remaining 20 percent are freestanding facilities. Hospital-based units accounted for almost 60 percent of Medicare payments to IRFs in 2010.

In 2010, there were about 1,180 IRFs in the United States, with at least one in every state and the District of Columbia (Figure 9-1). In general, IRFs are

concentrated in highly populated states that have large Medicare populations. IRFs are not the sole provider of rehabilitation services in communities; skilled nursing facilities (SNFs), home health agencies, comprehensive outpatient rehabilitation facilities, and independent therapy providers also furnish rehabilitation services. Given the number and distribution of these other types of rehabilitation therapy providers, it is unlikely that many areas exist where IRFs are the only provider of rehabilitation therapy services available to Medicare beneficiaries.

Almost 360,000 Medicare fee-for-service (FFS) beneficiaries received care in IRFs in 2010 (Table 9-1, p. 238). Relatively few Medicare beneficiaries use IRF services because, to qualify for Medicare coverage, IRF patients must be able to tolerate and benefit from intensive rehabilitation therapy, which typically consists of at least three hours of therapy a day for at least five days a week. Nevertheless, Medicare is the principal payer for IRF services, accounting for 60 percent of total IRF discharges in 2010. Almost all IRF patients (95 percent) were admitted to an IRF directly from an acute care hospital in 2010. A small percentage of patients, 2.5 percent, were admitted from a community setting, and the rest were admitted from other health care facilities, such as SNFs. Patients admitted to an IRF directly from the community must pay the Part A inpatient hospital deductible, which is \$1,156 in 2012. With respect to patient demographics, most Medicare FFS IRF patients in 2010 were white (81 percent) and female (59 percent), 10 percent were African American, and 5 percent were Hispanic.

### **Medicare facility requirements and coverage criteria**

To qualify as an IRF for Medicare payment, facilities first must meet the Medicare conditions of participation for acute care hospitals. They must also:

- have a preadmission screening process to determine that each prospective patient is likely to benefit significantly from an intensive inpatient rehabilitation program;
- ensure that the patient receives close medical supervision and furnish—through qualified personnel—rehabilitation nursing, physical therapy and occupational therapy, and, as needed, speech—language pathology, social services, psychological (including neuropsychological) services, and orthotic and prosthetic devices;

- have a medical director of rehabilitation, with training or experience in rehabilitating patients, who provides services in the facility on a full-time basis for freestanding facilities or at least 20 hours per week for hospital-based rehabilitation units;
- use a coordinated interdisciplinary team approach led by a rehabilitation physician that includes a rehabilitation nurse, a social worker or case manager, and a licensed therapist from each therapy discipline involved in treating the patient; and
- meet the compliance threshold, which specifies that no fewer than 60 percent of all patients admitted to the IRF must have at least 1 of 13 conditions specified by CMS as a primary diagnosis or comorbidity.<sup>1</sup>

The compliance threshold mandates that a certain proportion of patients in each IRF must have specific diagnoses identified by CMS as typically requiring intensive inpatient rehabilitation. The intent of the compliance threshold is to distinguish IRFs from acute care hospitals. From 1984 through 2004, the compliance threshold required that 75 percent of an IRF's cases have 1 of 10 diagnoses. In 2002, CMS suspended enforcement of the rule because of inconsistent enforcement patterns among Medicare's fiscal intermediaries. In 2004, CMS revised the compliance threshold policy and enforcement: first, by increasing the number of conditions that count toward the threshold to 13 (by redefining the arthritis conditions that counted);<sup>2</sup> second, by clarifying that only a subset of patients with major joint replacement—a condition that was commonly treated in IRFs—would count toward the compliance threshold; and third, by consistently enforcing IRFs' compliance with the threshold. The combination of not allowing most major joint replacement patients to count toward the threshold and renewed enforcement of the threshold resulted in a substantial decline in the volume of Medicare patients treated in IRFs after 2004. As volume declined, occupancy rates and the number of rehabilitation beds fell as well. Case-mix severity increased, however, as the IRF patient population shifted from less severe hip and knee patients to patients with more severe disorders who counted toward the threshold. Growth in cost per case increased as well—a function of greater patient severity (i.e., higher case-mix weight) and because IRFs' fixed costs were spread across fewer patients. The compliance threshold, originally set at 75 percent, was permanently capped at 60 percent in 2007 by the Medicare, Medicaid, and SCHIP Extension Act of 2007 (MMSEA). At that point, the industry was largely

operating at 60 percent compliance, and the industry supported MMSEA permanently capping the threshold at 60 percent. Since then, the industry has begun to stabilize in response to the compliance threshold and for the past several years all IRFs have met the compliance threshold.

Medicare applies additional criteria that govern whether IRF services are covered for an individual Medicare beneficiary. Revised coverage criteria, which became effective in January 2010, are clearer about which patients are appropriate to be treated in an IRF, when therapy must begin, and how and when beneficiaries are evaluated but are not major shifts or changes from the former requirements. Specifically:

- The patient requires therapy in at least two modalities, one of which must be physical or occupational therapy.
- The patient generally requires and can reasonably be expected to benefit from intensive rehabilitation therapy that most typically consists of at least three hours of therapy a day at least five days a week.
- An IRF admission for the purpose of assessing whether a patient is appropriate for IRF care is no longer covered and therapy must begin within 36 hours from midnight of the day of admission.
- The patient is sufficiently medically stable at the time of the IRF admission to be able to actively participate in intensive therapy.
- The patient requires supervision by a rehabilitation physician. This requirement is satisfied by physician face-to-face visits with a patient at least three days a week.

Revised process and documentation requirements were also effective January 2010. They include the following: a qualified clinician designated by a rehabilitation physician must conduct a preadmission screening generally within 48 hours before admission to the IRF; a rehabilitation physician must conduct a postadmission evaluation within 24 hours of admission; within 4 days of admission, an individualized care plan must be developed by a rehabilitation physician for each patient; the interdisciplinary team must meet once a week, in contrast to the prior requirement of once every two weeks; and a rehabilitation physician is required to approve the results of the preadmission screening, conduct the postadmission evaluation, and lead the interdisciplinary team.

## **FFS Medicare spending trends for IRFs**

Before January 2002, IRFs were paid on the basis of their average costs per discharge, up to an annually adjusted facility-specific limit. Pursuant to the Balanced Budget Act of 1997, IRFs began to be paid in 2002 under a prospective payment system (PPS) based on per discharge rates that vary according to rehabilitation needs, area wages, and certain facility characteristics. As of fiscal year 2004, all IRFs were paid under the IRF PPS.

Aggregate expenditures for IRF services in the Medicare FFS program grew after implementation of the PPS in 2002, when these expenditures totaled nearly \$5.7 billion; they grew at an annual rate of 6.7 percent to about \$6.4 billion in 2004 (Table 9-1, p. 238). Between 2005 and 2008, however, aggregate FFS expenditures for IRFs fell, as more beneficiaries enrolled in Medicare Advantage plans and as facilities adjusted to meet the compliance threshold that CMS reinstated in 2004. FFS expenditures also fell when CMS reduced IRF payments by 1.9 percent in 2006 and by 2.6 percent in 2007 to adjust for changes in IRF coding practices that CMS analyses determined did not reflect real changes in IRF patients' acuity. In 2009, aggregate FFS expenditures for IRF services began to increase. In 2010, FFS spending on IRFs increased by almost 5 percent to \$6.32 billion, the highest level since 2006 (not shown in table).

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## **Are Medicare payments adequate in 2012?**

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To address whether payments for fiscal year 2012 are adequate to cover the costs that efficient providers incur or how much payments should change in fiscal year 2013, we examine several indicators of payment adequacy. Specifically, we assess beneficiaries' access to care by examining the supply and capacity of IRF providers and changes over time in the volume of services provided, quality of care, provider access to capital, and the aggregate relationship between Medicare's payments and IRF providers' costs. Our analysis this year found that the Medicare payment adequacy indicators for IRFs are relatively positive.

## **Beneficiaries' access to care: IRF supply and volume are relatively stable**

We have no direct indicator of beneficiaries' access to care because no surveys exist that are specific to this

**TABLE  
9-1**

**Medicare FFS spending, volume, and utilization for IRFs, 2002–2010**

	2002	2004	2008	2009	2010	Average annual change		Annual change	
						2002–2004	2004–2008	2008–2009	2009–2010
Medicare spending (in billions)	\$5.65	\$6.43	\$5.95	\$6.03	\$6.32	6.7%	–1.9%	1.3%	4.8%
Number of cases	446,000	495,000	356,000	364,000	359,000	5.3	–7.9	2.2	–1.3
Unique patients per 10,000 FFS beneficiaries	115.7	123.0	91.5	93.0	91.1	3.1	–7.1	1.6	–2.1
Payment per case	\$11,127	\$13,290	\$16,646	\$16,552	\$17,085	9.3	5.8	–0.6	3.2
ALOS (in days)	13.2	12.7	13.3	13.1	13.1	–2.3	1.3	–1.4	0.0

Note: FFS (fee-for-service), IRF (inpatient rehabilitation facility), ALOS (average length of stay). With respect to unique FFS patients in a particular year, each IRF FFS patient is counted only once during that year, regardless of whether the patient had multiple IRF admissions in that year. Data on spending are from the Office of the Actuary and the rest of the data are from MedPAR files. Data from the MedPAR files differ from the March 2011 report due to a refinement in the methodology used to analyze the MedPAR files. However, the trends in IRF volume described in previous reports—that volume declined after 2004, stabilized in 2008, and remained stable in 2009—are still consistent.

Source: MedPAC analysis of MedPAR data from CMS and data on aggregate Medicare spending for IRF services are from December 2011 estimates from the CMS Office of the Actuary.

small portion of the Medicare population. We also are not able to determine directly the necessity that rehabilitation services be provided in an IRF versus another post-acute care setting. However, our analyses of facility supply, occupancy rates, total number of IRF beds, and volume of services suggest that beneficiaries have sufficient access to IRF care.

**Capacity and supply: Number of IRFs, occupancy rates, and number of rehabilitation beds remain relatively stable**

The supply of IRFs increased slightly after implementation of the IRF PPS in 2002 and peaked at 1,235 facilities in 2005 (Table 9-2). The supply of IRFs has been declining since 2005 and decreased by 17 facilities between 2009 and 2010. However, the number of freestanding IRFs increased an average of 0.9 percent each year between 2005 and 2009 and increased by 3.6 percent between 2009 and 2010. The number of nonprofit IRFs declined by three between 2009 and 2010—the net result of a loss of four hospital-based IRFs and a gain of one freestanding IRF. Similarly, the number of for-profit IRFs fell by 1 between 2009 and 2010—the net result of a loss of 10 hospital-based for-profit IRFs and a gain of 9 freestanding for-profit IRFs. While changes in the number of IRFs vary

by category, the overall picture suggests that the supply of IRFs is relatively stable under the PPS.

Occupancy rates provide another view of IRFs’ capacity to serve patients, and they indicate that capacity is adequate to handle current demand and can likely accommodate future increases (Table 9-3). Occupancy rates fell from 2002 through 2007 and the decline accelerated in 2004 due to renewed enforcement of the compliance threshold. In 2008, overall occupancy rates increased to above 62 percent and continued to increase in 2009. Occupancy rates fell slightly, by half a percent, in 2010 but remained above 62 percent. In 2010, occupancy rates were higher for freestanding IRFs (67.2 percent) than for hospital-based IRFs (59.4 percent) and higher for IRFs in urban areas than in rural areas (63.6 percent and 49.7 percent, respectively). Occupancy rates in most states ranged from 42 percent to 79 percent.

The total number of rehabilitation beds nationwide is another measure of IRF capacity. After increasing between 2002 and 2003, the number of IRF beds declined after 2004, as the industry adjusted to a decrease in the volume of cases due to renewed enforcement of the compliance threshold (Table 9-4, p. 240). Between 2004 and 2008, the number of beds declined by an average of 1.1 percent each



**TABLE  
9-2**

**Supply of freestanding IRFs continued to increase in 2010, while total supply continued to decline modestly**

Type of IRF	PPS						Average annual change 2005-2009	Annual change 2009-2010
	2004	2005	2006	2008	2009	2010		
All IRFs	1,221	1,235	1,225	1,202	1,196	1,179	-0.8%	-1.4%
Urban	1,024	1,027	1,018	1,001	992	981	-0.9	-1.1
Rural	197	208	207	201	204	198	-0.5	-2.9
Freestanding	217	217	217	221	225	233	0.9	3.6
Hospital based	1,004	1,018	1,008	981	971	946	-1.2	-2.6
Nonprofit	768	768	758	738	732	729	-1.2	-0.4
For profit	292	305	299	291	295	294	-0.8	-0.3
Government	161	162	168	173	169	156	1.1	-7.7

Note: IRF (inpatient rehabilitation facility), PPS (prospective payment system). For all years, the rural/urban breakdown is by core-based statistical area definition.

Source: MedPAC analysis of 2010 Provider of Service files from CMS.

year. After remaining nearly stable between 2008 and 2009, the total number of IRF beds declined by almost 1 percent in 2010. The decline in IRF beds in 2010 is the result of a 1.6 percent decrease in hospital-based IRF beds and a 0.2 percent increase in freestanding IRF beds from 2009.

**Volume of services: Volume of FFS patients in IRFs declined slightly in 2010**

We measure patient volume as the total number of FFS IRF cases and the number of FFS IRF patients per 10,000 FFS beneficiaries. The latter measure removes the effect

**TABLE  
9-3**

**IRF occupancy rates remained relatively stable in 2010**

Occupancy rates	2004	2006	2008	2009	2010	Percentage point change		
						2004-2008	2008-2009	2009-2010
All IRFs	67.8%	61.9%	62.1%	62.9%	62.4%	-5.7	0.7	-0.5
Hospital based	65.7	60.4	59.8	60.2	59.4	-5.9	0.4	-0.8
Freestanding	71.9	64.7	66.1	67.3	67.2	-5.7	1.2	-0.1
Urban	69.0	63.0	63.4	64.0	63.6	-5.6	0.6	-0.4
Rural	56.1	50.7	49.4	50.9	49.7	-6.8	1.5	-1.2
Number of beds								
1 to 10	55.2	49.5	51.6	49.6	49.9	-3.6	-2.0	0.2
11 to 21	63.2	58.7	57.5	57.5	56.3	-5.7	0.0	-1.2
22 to 59	68.1	61.5	61.2	62.7	62.8	-6.9	1.4	0.1
60 or more	71.1	65.4	66.8	67.3	66.6	-4.3	0.4	-0.7

Note: IRF (inpatient rehabilitation facility). Occupancy rate calculated based on total patient days divided by bed days available during the hospitals' cost reporting period. Column figures may not sum to 100 due to rounding.

Source: MedPAC analysis of Medicare hospital cost report data from CMS.

**TABLE  
9-4****Number of IRF beds remained relatively stable in 2010**

Type of bed	2004	2006	2008	2009	2010	Average annual change 2004–2008	Annual change	
							2008–2009	2009–2010
All IRFs	37,393	36,638	35,762	35,767	35,440	-1.1%	0.0%	-0.9%
Hospital based	23,742	23,778	22,670	22,267	21,907	-1.1	-1.8	-1.6
Freestanding	13,650	12,861	13,092	13,500	13,533	-1.0	3.1	0.2

Note: IRF (inpatient rehabilitation facility). Counts exclude data from Maryland, non-U.S. hospitals, and outliers. Number of beds is calculated by taking the total number of available bed days for all patients (not specific to Medicare) divided by the total number of days in the cost reporting period.

Source: MedPAC analysis of hospital cost report data from CMS.

of changes in Medicare Advantage enrollment and allows us to examine the prevalence of IRF use among Medicare FFS enrollees. Between 2002 and 2004, the number of cases and the number of patients per 10,000 FFS beneficiaries grew, with the number of cases increasing by an annual average of 5.3 percent (Table 9-1). However, volume declined substantially after 2004, as providers adjusted to renewed enforcement of the compliance threshold. From 2004 through 2008, the number of cases declined by an average of 7.9 percent each year; during the same period, the number of unique FFS patients per 10,000 FFS beneficiaries declined by an annual average of 7.1 percent. In 2008, the volume decline began to level off, coinciding with actions taken by the Congress in late 2007 to permanently cap the compliance threshold at 60 percent. In 2009, volume remained relatively stable, with the number of cases increasing by 2.2 percent and the number of unique patients per 10,000 FFS beneficiaries increasing by 1.6 percent.

In 2010, the number of Medicare FFS IRF patients declined slightly. The number of cases decreased by 1.3

percent between 2009 and 2010, and the number of unique patients per 10,000 FFS beneficiaries decreased by 2.1 percent. This slight decline in the number of cases may in part be due to the revised coverage criteria that went into effect in January 2010. The revised coverage criteria did not change but more clearly delineated which Medicare beneficiaries are appropriate for IRFs. Therefore, some patients that IRFs would have admitted previously might not have met the more specific coverage criteria in 2010.

The mix of patients treated by IRFs has changed since 2004, as IRFs admitted a higher percentage of patients with diagnoses that met the revised compliance threshold. The percentage of IRF cases with 1 of the 13 specified conditions has increased, according to our analysis of proprietary data for a sample of IRFs (Table 9-5).<sup>3</sup> In the first three years of renewed enforcement of the revised compliance threshold (2004–2006), the aggregate percentage of Medicare cases meeting the threshold increased rapidly from 45.1 percent to 60.5 percent. However, when MMSEA capped the compliance threshold permanently at 60 percent in 2007, the increase in the

**TABLE  
9-5****Compliance rate of Medicare IRF cases remained above 60 percent in 2011**

	2004	2005	2006	2008	2010	2011
Estimated compliance rate of Medicare IRF cases	45.1%	55.6%	60.5%	61.4%	61.6%	61.2%

Note: IRF (inpatient rehabilitation facility). The data for 2011 are limited to discharges that occurred between January and June 2010. The compliance rate is the aggregate percent of IRF cases that fall into 1 of 13 CMS specified diagnoses. As of July 2007, 60 percent of a facility's cases must fall into one of these diagnoses for the facility to be paid as an IRF.

Source: MedPAC analysis of 2004 to 2011 data from eRehabData@.

**TABLE  
9-6**

**IRF patient mix has changed, 2004-2011**

Type of case	Percent of IRF Medicare FFS cases					Percentage point change, 2004-2011
	2004	2006	2008	2010	2011*	
Stroke	16.6%	20.4%	20.4%	20.1%	19.8%	3.2
Fracture of the lower extremity	13.1	16.1	16.0	14.3	13.9	0.8
Major joint replacement of the lower extremity	24.0	17.8	13.1	11.5	10.5	-13.6
Debility	6.1	6.2	9.1	10.0	10.4	4.3
Neurological disorders	5.2	7.0	8.0	9.8	10.3	5.1
Brain injury	3.9	6.0	7.0	7.3	7.5	3.6
Other orthopedic conditions	5.1	5.2	6.1	6.7	7.0	1.8
Cardiac conditions	5.3	4.0	4.7	4.9	5.1	-0.2
Spinal cord injury	4.2	4.6	4.3	4.3	4.3	0.1
Other	16.4	12.8	11.3	11.1	11.1	-5.3

Note: IRF (inpatient rehabilitation facility). FFS (fee-for-service). "Other" includes conditions such as amputations, major multiple trauma, and pain syndrome. Numbers may not sum to 100 percent due to rounding.  
\*Data are for the first six months of 2011.

Source: MedPAC analysis of inpatient rehabilitation facility patient assessment instruments from CMS for 2004-2010, and January 1 through June 30, 2011.

compliance rate leveled off and the rate remained about 61 percent through 2011.

Since 2004, the average case mix of IRF patients increased in severity, both for patients who met the compliance threshold and for those who did not. As expected, the cases that did not count toward the compliance threshold (noncompliant cases) were less complex than those that did (compliant cases), according to our analysis of proprietary data from eRehabData.com. In that analysis, all the cases treated by IRFs between 2004 and the first six months of 2011 were measured by the IRF PPS relative payment weights. In 2004, the average relative payment weight for compliant cases was about 1.28, compared with about 0.90 for noncompliant cases. In 2011, the average relative payment weight for compliant cases was 1.37, compared with 1.09 for noncompliant cases. The increase in the case mix of compliant cases leveled off after 2009, while the case mix of noncompliant cases continued to increase. The average relative payment weight for compliant cases dropped slightly from 1.38 in 2009 to 1.37 in 2010 and remained at 1.37 for the first six months of 2011. In contrast, the average relative payment weight for noncompliant cases increased from 1.07 to 1.08 and continued to increase to 1.09 in the first six months of 2011.

As IRFs have adjusted their patient admission patterns to meet the revised compliance threshold, the average case-mix severity of the Medicare FFS IRF population has

increased, with the largest increases in case mix occurring during the first three years of renewed enforcement of the revised compliance threshold. The average case-mix severity of Medicare patients increased by 3.3 percent in 2005, 6.5 percent in 2006, and 2.5 percent in 2007.<sup>4</sup> After the compliance threshold was capped at 60 percent in 2007, the increase in patient severity slowed and case mix increased by almost 2 percent in 2008 and 2009. The increase in patient severity slowed even further after 2009, with average case mix increasing 0.4 percent in 2010 and 0.3 percent in 2011. These data are consistent with the stability in the average relative payment weight of compliant cases in 2010 and 2011, the slight increase in the payment weight for noncompliant cases for the same time period, and the compliance rate remaining at about 61 percent. In addition, between 2009 and 2010, the average length of stay for Medicare FFS IRF patients (Table 9-1) remained the same. The stability in the average length of stay may reflect IRFs' increasing experience with managing their current patient mix.

The change in case mix over time is also reflected in the shifting pattern of diagnoses admitted to IRFs among IRF FFS cases since 2004 (Table 9-6). The share of major joint replacements of the lower extremity fell by 13.6 percentage points between 2004 and the first half of 2011, consistent with the more limited definition of joint replacement patients that count toward the revised

**TABLE  
9-7**

**Top 10 types of cases  
in hospital-based and  
freestanding IRFs, 2010**

Type of case	Type of IRF	
	Hospital based	Freestanding
Stroke	22%	16%
Fracture of the lower extremity	15	12
Miscellaneous	12	12
Major joint replacement of the lower extremity	11	11
Brain injury	7	6
Neurological disorders	7	12
Other orthopedic conditions	5	9
Spinal cord injury	5	4
Cardiac conditions	4	5
Short-stay patients*	4	4

Note: IRF (inpatient rehabilitation facility).  
\*The short-stay category includes patients who expired while in the IRF.

Source: MedPAC analysis of 2010 Medicare claims data.

compliance threshold implemented in 2004. During the same period, the percentage of IRF patients with conditions included in the compliance threshold—such as stroke, brain injury, and neurological disorders—increased. Between 2010 and the first half of 2011, the share of brain injury cases increased by 0.2 percentage point and the share of neurological disorders increased by 0.5 percentage point; however, the share of strokes declined by 0.3 percentage point. The shares of debility cases and other orthopedic conditions have increased by 4.3 percentage points and 1.8 percentage points, respectively, since 2004. The growth in debility cases and other orthopedic conditions is more surprising, because neither is among the 13 conditions included in the compliance threshold.

Hospital-based and freestanding IRFs have relatively similar patient populations, according to our analysis of Medicare claims data (Table 9-7). In 2010, the top 10 types of cases were the same for both types of IRFs, and they accounted for 92 percent and 91 percent of cases in hospital-based IRFs and freestanding IRFs, respectively. Half of these conditions do not count toward the compliance threshold (miscellaneous, major joint

replacement of the lower extremity, other orthopedic conditions, cardiac conditions, and short-stay patients). Although the 10 most common conditions were the same for hospital-based IRFs and freestanding IRFs, the distribution of those cases differed. Stroke patients constituted a higher share of hospital-based IRF cases than of freestanding IRF cases (22 percent compared with 16 percent), while patients with neurological disorders constituted a higher share of freestanding IRF cases (12 percent compared with 7 percent). Other orthopedic conditions, which do not count toward the compliance threshold, also accounted for a higher share of total cases in freestanding IRFs than in hospital-based IRFs (9 percent compared with 5 percent).

Under the IRF Medicare payment system, IRF patients are classified into 92 case-mix groups (CMGs). In 87 of these CMGs, patients are further categorized into 1 of 4 tiers based on the presence of certain comorbidities that have been found to increase the cost of care relative to the cost of caring for an average beneficiary in that CMG. Each tier has a specific payment that reflects the costliness of patients in that tier relative to the other tiers in a CMG.<sup>5</sup> For the 87 CMGs categorized into tiers, tier 1 reflects the costliest patients (i.e., it has the highest relative weight), tier 2 reflects the second costliest patients, tier 3 reflects the third costliest patients, and tier 4 reflects the least costly patients, who do not have any of the comorbidities that have been found to increase the cost of care. The distribution of Medicare IRF cases by tier is fairly consistent for hospital-based IRFs and freestanding IRFs (Table 9-8). More than 60 percent of cases in both hospital-based IRFs and freestanding IRFs are in tier 4 and

**TABLE  
9-8**

**Distribution of IRF cases by  
case-mix group tier, 2010**

Tier	Type of IRF	
	Hospital based	Freestanding
1	4%	4%
2	7	9
3	25	26
4 (no comorbidities)	63	61

Note: IRF (inpatient rehabilitation facility). IRF patients are classified into 92 case-mix groups and within 87 of these groups, patients are further categorized into one of four tiers based on the presence of certain comorbidities.

Source: MedPAC analysis of 2010 Medicare claims data.

**TABLE  
9-9**

**Share of hospital discharges to IRFs continues to decline for hip and knee replacements but remains stable for stroke**

Condition	Discharge destination	Percent of hospital discharges					Percentage point change in share of hospital discharges	
		2004	2006	2008	2009	2010	2004-2009	2009-2010
Major joint replacement/hip and knee replacement	IRF	28%	20%	14%	13%	12%	-15%	-1%
	SNF/swing bed	33	35	36	37	38	4	1
	Home health	21	27	30	31	32	10	1
	All other settings	18	18	19	19	18	1	-1
Stroke	IRF	18	19	19	19	19	1	0
	SNF/swing bed	27	26	25	26	26	-1	0
	Home health	11	12	12	12	12	1	0
	All other settings	45	44	44	43	43	-2	0

Note: IRF (inpatient rehabilitation facility), SNF (skilled nursing facility). "All other settings" include outpatient care, other inpatient facilities, and home. Discharge destination totals may not equal 100 percent due to rounding.

Source: MedPAC analysis of 2004 through 2010 hospital inpatient Medicare claims data from CMS.

do not have a specific comorbidity identified as increasing the cost of care, although hospital-based IRFs have a slightly larger share of tier 4 cases (63 percent compared with 61 percent for freestanding IRFs). Both types of IRFs have the same distribution of tier 1 cases, and freestanding IRFs have a slightly higher share of tier 2 and tier 3 cases.

The decline in IRF FFS volume coinciding with renewed enforcement of the compliance threshold has raised questions about the impact of the compliance threshold on beneficiaries' access to care. If patients who needed intensive rehabilitation services were able to obtain appropriate care in other settings, the reduction in IRF patient volume over the past few years may not have constituted an access problem. Because we cannot identify beneficiaries who would have received care in an IRF if not for the compliance threshold, we analyzed changes in posthospital discharge destinations for patients likely to need rehabilitation from 2004 through 2010. We found that among stroke cases the share of hospital patients discharged to IRFs and other settings remained largely unchanged (Table 9-9). In contrast, for hip and knee replacement cases, a condition for which CMS has limited the types of cases that count toward the compliance threshold, the relative share of hospital patients discharged to IRFs declined by more than half between 2004 and 2010. Over the same period, however, the share of

patients with hip and knee replacements discharged to SNFs and home health agencies increased, suggesting that these beneficiaries were able to obtain rehabilitation care in other settings. CMS addressed the impact of the compliance threshold on beneficiaries' access to care in a 2010 report to the Congress mandated by MMSEA on the classification criteria for IRFs (Gage et al. 2010). The report, prepared for CMS by RTI, was unable to conclude definitively whether the compliance threshold has affected beneficiaries' access to rehabilitation services.

It is difficult to assess whether the rehabilitation care that patients receive is comparable across different post-acute settings in terms of quality, outcomes, and costliness (see Chapter 2 for a discussion of the challenges in making comparisons across settings of care). Overall, research studies do not conclusively identify one post-acute care setting as having better outcomes for rehabilitation patients. The 2010 RTI report for CMS analyzed peer-reviewed research on the effectiveness of IRFs compared with other post-acute care settings and concluded that the studies comparing outcomes in IRFs with outcomes in other post-acute care settings are limited because they do not adequately control for selection bias. The report also stated that the results from research comparing outcomes for lower extremity joint replacement patients and hip fracture patients in IRFs and SNFs are not consistent

across studies. In addition, a 2005 analysis prepared for the Commission found that, after controlling for patient selection, lower extremity joint replacement patients in IRFs and SNFs were more likely to be institutionalized (readmitted to a hospital or living in a nursing home) than patients who were discharged home after an acute care stay. However, differences in mortality rates across the settings were not statistically significant (Beeuwkes Buntin et al. 2005). The RTI report for CMS suggested that the standardized data from the Continuity Assessment Record and Evaluation (CARE) tool—a uniform post-acute care assessment tool being tested through the Medicare Post-Acute Care Payment Reform demonstration—can help CMS compare outcomes for rehabilitation care across settings. The report on the results of that demonstration is undergoing clearance. When it is released, the report may include CMS’s plans for future use of the CARE tool.

### **Quality of care: Preliminary risk-adjusted measures show improved quality of care in IRFs but quality can still be improved**

Our preliminary analysis of risk-adjusted quality measures shows that, relative to unadjusted measures, quality of care across the IRF industry improved between 2004 and 2009 (Table 9-10). However, these results are preliminary and future refinements or changes to the risk-adjustment methodology could produce different results. In previous Commission reports, we reported increases in Functional Independence Measure™ (FIM™) gain since 2004 (Medicare Payment Advisory Commission 2011). FIM gain is the difference between admission scores and discharge scores for the FIM item on the IRF–Patient Assessment Instrument (IRF–PAI).<sup>6</sup> However, we could not conclude that the observed improvements in FIM gain represented true quality-of-care improvements without controlling, through risk adjustment, for the changes in patient mix over the same time period.

To overcome this limitation, we contracted with researchers at RAND to develop risk-adjusted quality measures for IRFs at the facility level and to report on aggregate trends in IRF quality. We measured IRF quality through the following metrics: FIM gain, rates of discharge to the community, rates of discharge from an IRF to an acute care hospital (for any reason, not limited to preventable readmissions), admission to a SNF within 30 days of discharge to the community, and admission to an acute care hospital for any reason within 30 days of discharge to the community. The latter two measures are restricted to beneficiaries who were initially discharged

home and then admitted to a SNF or readmitted to an acute care hospital. Our selection of the quality measures was informed by an expert panel meeting on IRF quality that we convened in 2010; researchers have used many of these measures to evaluate quality in IRFs or in other post-acute care settings.

The adjusted rates for the quality indicators were developed through fixed-effects risk-adjustment models using data for 2004 through 2009. These models are new and may be refined in the future. The main data source was the IRF–PAI, and researchers also used data from the Medicare Provider Analysis and Review (MedPAR) file to record comorbidities from the prior year and complications from the preceding acute stay, the Medicare Denominator file for patient demographic information, and the Provider of Services file for provider characteristics. The risk-adjustment models controlled for patient demographics (age, race, ethnicity, marital status, dual-eligible status, and disability status); patients’ Impairment Group Code at admission (indicates a patient’s medical condition); prior admission to an IRF; admission to the IRF from the community; certain comorbidities that have been shown in the literature to be predictive of hospital charges, length of stay, and patient health outcomes;<sup>7</sup> and certain complications present at admission to an acute care hospital that have a continued effect and could influence post-acute care outcomes.<sup>8</sup>

Unadjusted results for 2004 through 2009 showed improved FIM gain but poorer performance over time for the other four measures (Table 9-10). Unadjusted FIM gain increased from 25.3 in 2004 to 27.1 in 2009—an increase of 1.8—while rates of discharge to the community decreased and rates of acute care hospital discharge, hospital readmission, and SNF admission within 30 days of discharge increased. However, the preliminary models suggest that changes in the patient population—specifically, the increase in patient severity since 2004 due to renewed enforcement of the compliance threshold—affected IRFs’ performance on these quality measures. After an adjustment was made for patient severity, the preliminary results suggest that performance on all the quality measures improved between 2004 and 2009. However, quality might not have improved or it might have improved less than our results suggest if the changes in patient severity since 2004 were due to changes in coding rather than actual changes in patient severity. In addition, future refinements to the model could produce different results.

**TABLE  
9-10****Preliminary results indicate that IRF quality of care improved across five risk-adjusted quality measures relative to the unadjusted rates, 2004–2009**

	2004	2005	2006	2007	2008	2009
FIM <sup>TM</sup> gain						
Raw	25.3	25.8	25.9	26.2	26.5	27.1
Adjusted*	25.3	25.9	26.3	26.8	27.2	27.9
Discharge to community						
Raw	77.8%	75.4%	73.2%	72.1%	71.3%	71.0%
Adjusted*	77.8%	77.9%	78.1%	78.5%	78.4%	78.9%
Discharge to acute care hospital						
Raw	8.7%	9.1%	9.4%	9.9%	10.1%	10.2%
Adjusted*	8.7%	8.1%	7.6%	7.6%	7.6%	7.2%
Hospital readmission within 30 days after discharge to community						
Raw	10.8%	10.5%	11.0%	11.4%	11.4%	11.6%
Adjusted*	10.8%	9.8%	9.7%	9.6%	9.4%	9.3%
SNF admission within 30 days after discharge to community						
Raw	3.1%	3.2%	3.3%	3.5%	3.6%	3.7%
Adjusted*	3.1%	3.0%	2.9%	2.9%	2.9%	2.9%

Note: IRF (inpatient rehabilitation facility), SNF (skilled nursing facility), FIM<sup>TM</sup> (Functional Independence Measure<sup>TM</sup>). FIM gain is the difference between the Functional Independence Measure on the IRF–Patient Assessment Instrument between admission and discharge. Adjusted rates were developed from risk-adjustment models and hold the 2004 Medicare IRF patient cohort constant through 2009.

\*Adjusted rates are preliminary and the risk-adjustment models may be further refined in the future.

Source: RAND analysis of the IRF–Patient Assessment Instrument (IRF–PAI), MedPAR, denominator file, and provider of services file.

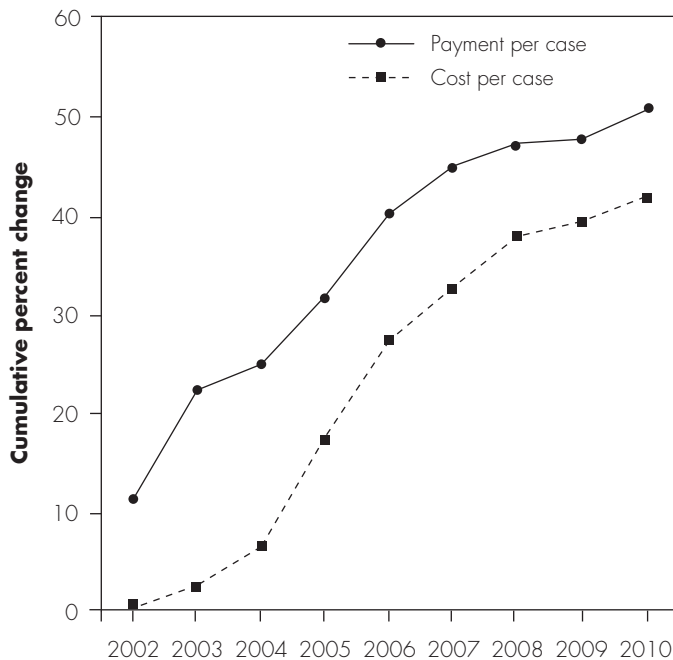
Table 9-10 shows the preliminary adjusted results for each quality measure. These adjusted rates were developed by holding the 2004 cohort of Medicare patients constant and modeling that cohort through the 2004 through 2009 year-specific risk-adjustment models. This methodology identifies what quality of care would have been in 2005 through 2009 had patient mix not changed since 2004. The adjusted FIM gain was higher than the raw FIM gain each year from 2005 through 2009, and the adjusted increase in FIM gain between 2004 and 2009 was higher than the unadjusted difference (2.6 and 1.8, respectively). While unadjusted rates of discharge to the community declined by 6.8 percentage points between 2004 and 2009, the adjusted rates of discharge to the community increased by 1.1 percentage points. For the remaining three quality measures, the unadjusted hospital or SNF admission rates increased between 2004 and 2009; however, after

patient mix was held constant, rates of discharge to acute care hospitals declined from 2004 through 2009 by 1.5 percentage points, rates of hospital admission within 30 days after discharge to the community declined by 1.5 percentage points, and rates of SNF admissions within 30 days after discharge to the community decreased by 0.2 percentage point.

Although risk-adjusted quality of IRF care has improved since 2004, there is still room for improvement. After controlling for patient characteristics, 7.2 percent of IRF patients are readmitted to an acute care hospital directly upon discharge from an IRF, an additional 9.3 percent of IRF patients are readmitted to an acute care hospital within 30 days after they were discharged home from an IRF, and 2.9 percent of patients are admitted to a SNF within 30 days after they were discharged home. While we do not

**FIGURE  
9-2**

**Under the PPS, IRFs' payments per case have consistently risen faster than costs, 2002-2010**



Note: PPS (prospective payment system), IRF (inpatient rehabilitation facility). Data are from consistent two-year cohorts of IRFs. Costs are not adjusted for changes in case mix.

Source: MedPAC analysis of Medicare cost report data from CMS.

expect IRF patients to never be readmitted to a hospital or admitted to a SNF, these results suggest areas for improvement in the quality of care IRFs provide.

**Providers' access to capital: IRFs appear to have adequate access to capital**

Eighty percent of IRFs are hospital-based units that have access to capital through their parent institution. As described in Chapter 3 of this report, inpatient hospitals' access to capital appears adequate. Levels of hospital bond issuances and spending on hospital construction moderated somewhat in 2010 but remain high. Further, compared with previous years, in 2010 the number of hospital merger and acquisition transactions increased and the degree of hospital consolidation increased.

As for freestanding IRFs, an analysis of one major national chain found that they are able to access capital markets because they have positive revenue growth. However, the cost to the chain of accessing that capital under the equity

and debt capital markets increased in 2011 because of proposed policies specific to IRFs that were discussed, but not implemented, as part of congressional deliberations on deficit reduction and job creation toward the end of 2011. Besides this chain, most other freestanding facilities are independent or local chains with only a few providers (for profit or nonprofit). The extent to which these providers have access to capital is less clear.

**Medicare payments and providers' costs: Payments to IRFs have grown faster than costs since 2002 PPS implementation**

Overall, Medicare's payments per case to IRFs have grown faster than IRFs' costs per case since implementation of the PPS in 2002, even though costs per case have grown faster than payments since 2004 (Figure 9-2). Costs per case grew rapidly between 2004 and 2006, reaching a high of 11.1 percent growth in 2005. During that time, IRFs' fixed costs were being spread over fewer cases because of a decline in the volume of cases, while patient severity increased consistent with the revisions to and renewed enforcement of the compliance threshold. Cost growth slowed after 2006 as patient volume steadied; in 2010, payments grew faster than costs at 2.9 percent for payments compared with 2.5 percent for costs.

The average Medicare FFS payment per case has increased since 2002 (Table 9-1). Payments per case grew by an annual average of 9.3 percent during the first two years of the PPS (2002-2004) and by an annual average of 5.8 percent between 2004 and 2008 when patient severity increased as IRFs responded to renewed enforcement of the compliance threshold. The average payment per case declined between 2008 and 2009 because of a zero payment update in 2009, as required by MMSEA, and CMS's adjustment of the 2009 outlier threshold. MMSEA also required no update for the second half of 2008; therefore, payments for 2009 in effect were held at 2007 levels. Between 2009 and 2010, the average payment per case increased by 3.2 percent, although the number of cases fell by 1.3 percent over that time period. The increase in average payment per case was due to a 0.4 percent increase in case-mix severity, a 2010 update to the base rates of 2.25 percent, and a 4.4 percent increase in outlier payments.

**Standardized IRF costs reflect economies of scale**

Adjusting IRF costs per discharge for differences in wages, case mix, and outlier payments permits a standardized comparison of costs across different types



**TABLE  
9-11**

**Mean adjusted costs per discharge are lower for freestanding IRFs and larger facilities, 2010**

Type of IRF	Mean adjusted cost per discharge
All IRFs	\$15,205
Hospital based	15,940
Freestanding	12,050
Urban	14,573
Rural	18,338
Number of beds	
1 to 10	18,285
11 to 21	16,089
22 to 59	14,486
60 or more	12,243

Note: IRF (inpatient rehabilitation facility). Cost per discharge is standardized for the wage index, case mix, and outliers.

Source: MedPAC analysis of 2010 standard analytical file and Medicare cost report data from CMS.

of IRFs. The mean adjusted cost per discharge for all IRFs in 2010 was \$15,205 (Table 9-11). On average, after adjustment, costs per discharge in freestanding IRFs were about \$3,890 (24 percent) lower than in hospital-based IRFs, and costs per discharge in urban IRFs were approximately \$3,766 (21 percent) lower than in rural IRFs. Average costs per discharge also declined as a facility’s number of beds increased. In 2010, costs per discharge were \$6,042 (33 percent) lower in facilities with more than 60 beds than in facilities in the 1- to 10-bed range. The differences in costs by number of beds suggest that larger facilities have economies of scale that result in lower costs per discharge.

We stratified IRFs into quartiles of standardized costs to compare the characteristics of facilities in the low-cost and high-cost quartiles (Table 9-12). In 2010, the mix of hospital-based and freestanding IRFs changed across quartiles, with the low-cost quartile having the highest percentage of freestanding IRFs and the top quartile consisting of nearly all hospital-based facilities. IRFs in the low-cost quartile also tended to be larger facilities. The median number of beds in the low-cost quartile was 40 compared with the high-cost quartile’s median of 17 beds. Higher occupancy was another characteristic of IRFs in

the low-cost quartile. The median occupancy rate for IRFs in the low-cost quartile was 70 percent while the rate in the high-cost quartile was 49 percent. Case mix did not vary much across quartiles, suggesting that number of beds and occupancy rates rather than case mix accounted for lower costs per discharge. The median Medicare margins reflect the differences in adjusted costs. The median margin for IRFs in the low-cost quartile of costs was 22.8 percent compared with -25.5 percent for IRFs in the top quartile.

**IRF Medicare margins increased in 2010**

Average IRF Medicare margins increased between 2009 and 2010. During the first two years of the IRF PPS, margins rose rapidly, reaching 17.8 percent in 2003 with all IRF provider types experiencing solid gains (Table 9-13, p. 248). After this rapid buildup, margins declined moderately each year but remained at a healthy 8.8 percent in 2010. The decline in margins over this period was mostly due to large drops in patient volume and fixed costs spread over fewer patients. The drop in margins from 2007 to 2009, however, was due to a zero update to the base rates for half of 2008 and for all of 2009 that resulted in

**TABLE  
9-12**

**Higher number of beds, occupancy rates, and case-mix index are characteristics of IRFs in the low-cost quartile of standardized costs, 2010**

Characteristic	Quartile	
	Low cost	High cost
Number of IRFs	272	272
Percent:		
Hospital based	51.5%	95.6%
Freestanding	48.5	4.4
Urban	93.8	63.6
Rural	6.3	36.4
Median:		
Medicare margin	22.8%	-25.5%
Number of beds	40	17
Occupancy rate	70%	49%
Case-mix index	1.23	1.18

Note: IRF (inpatient rehabilitation facility). Costs per discharge are standardized for the wage index, case mix, and outliers.

Source: MedPAC analysis of 2010 standard analytical file and Medicare cost report data from CMS.

**TABLE  
9-13**

**IRFs' Medicare margins rose in 2010 but vary by type of facility**

Type of IRF	PPS									
	2002	2003	2004	2005	2006	2007	2008	2009	2010	
All IRFs	10.8%	17.8%	16.7%	13.4%	12.4%	11.9%	9.5%	8.4%	8.8%	
Urban	11.3	18.2	16.9	13.5	12.6	12.1	9.7	8.6	9.1	
Rural	5.9	12.5	13.9	11.8	10.6	10.0	7.6	6.3	5.5	
Freestanding	18.5	22.9	24.7	20.7	17.5	18.5	18.2	20.3	21.4	
Hospital based	6.1	14.8	12.2	9.3	9.7	8.1	4.1	0.4	-0.2	
Nonprofit	6.5	14.7	12.8	10.3	10.7	9.7	5.6	2.3	2.0	
For profit	18.5	23.7	24.4	19.7	16.3	16.8	16.7	19.0	19.8	
Government	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
Number of beds										
1 to 10	1.6	3.7	3.4	-2.8	-3.9	-2.9	-5.0	-11.6	-10.9	
11 to 21	3.3	11.2	9.6	6.1	7.0	5.4	0.7	-2.6	-3.2	
22 to 59	10.0	17.9	16.1	13.4	12.4	11.2	8.5	6.6	7.0	
60 or more	16.4	22.2	22.5	19.0	17.5	18.0	17.1	18.3	18.5	

Note: IRF (inpatient rehabilitation facility), PPS (prospective payment system), N/A (not available). Government-owned providers operate in a different context from other providers, so their margins are not necessarily comparable.

Source: MedPAC analysis of Medicare cost report data from CMS.

Medicare payment rates remaining at 2007 levels. In 2010, IRFs received a 2.25 percent update to the base rates and aggregate IRF margins increased from 8.4 percent in 2009 to 8.8 percent in 2010.

As in other Medicare sectors, margins vary substantially across providers. Freestanding and for-profit IRFs—which had the highest margins in 2004 (greater than 24 percent)—continued to exhibit the best financial performance. Margins in 2010 for freestanding and for-profit IRFs were 21.4 percent and 19.8 percent, respectively. (Freestanding and for-profit IRFs are dominated by one provider chain that accounts for about 50 percent of freestanding and for-profit revenues and 21 percent of revenues for the industry.) In comparison, hospital-based and nonprofit IRFs had lower margins, at -0.2 percent and 2.0 percent, respectively. Total (all payer) margins for freestanding facilities were 7.6 percent in 2009 and increased to 10.2 percent in 2010.<sup>9</sup>

The difference between the 21.4 percent margins for freestanding facilities and the -0.2 percent margins for hospital-based units in 2010 was likely due to volume and the ability to constrain cost growth. Hospital-based units

in general have lower occupancy rates than freestanding facilities and tend to be smaller facilities—more than half of hospital-based IRFs (58 percent) have fewer than 21 beds, whereas 50 percent of freestanding IRFs are facilities with 60 beds or more. In addition, hospital-based IRFs have higher direct and indirect costs than freestanding IRFs. In 2010, hospital-based IRFs had 30.2 percent higher direct costs per case, 33.9 percent higher direct costs per diem, 10.8 percent higher indirect costs per case, and 15.6 percent higher indirect costs per diem (Table 9-14). Although hospital-based IRFs had higher indirect costs per case and per diem, indirect costs were a larger share of freestanding IRFs' aggregate costs (40.3 percent) compared with those of hospital-based IRFs (34.6 percent). This finding suggests that freestanding IRFs were better than hospital-based IRFs at managing their costs, because, despite their larger share of indirect costs, they had lower indirect costs per case and per diem.

In addition, although hospital-based IRFs had -0.2 percent margins, on aggregate they were still able to cover their direct costs. The direct cost margin (calculated as payments minus direct costs, divided by payments) for

**TABLE  
9-14**

**Freestanding IRFs have a higher share of indirect costs but lower indirect costs per case and per diem, 2010**

	Type of IRF		
	Hospital based	Freestanding	Percent difference
Direct cost			
Per case	\$11,311	\$7,889	30.2%
Per diem	886	586	33.9
Indirect cost			
Per case	5,981	5,334	10.8
Per diem	469	396	15.6
			<b>Percentage point change</b>
Indirect cost share	34.6%	40.3%	-5.7
Direct cost margin	34.4	53.1	-18.7

Note: IRF (inpatient rehabilitation facility).

Source: MedPAC analysis of cost report data from CMS.

hospital-based IRFs was 34.4 percent, which demonstrates that Medicare payments for hospital-based IRFs were sufficient for the units to cover their direct costs. Further, hospital margins were better for hospitals that had IRF units. Medicare margins for inpatient hospitals with IRF units were -3.6 percent compared with -5.2 percent for hospitals without an IRF unit, which suggests that IRF units were able to make positive financial contributions to their parent hospitals.

**Medicare margins for urban and rural IRFs**

To further assess the differences in Medicare payments to IRFs in urban and rural areas, we analyzed Medicare

cost per case, payment per case, and margins for IRFs located in urban areas and in three types of rural areas: micropolitan, adjacent to an urban area, and nonadjacent to an urban area. All IRFs in rural areas receive a payment adjustment for rural status. Since fiscal year 2010, CMS has set the adjustment at 18.4 percent.

Medicare margins in 2010 were highest and cost per case was lowest for IRFs in rural areas nonadjacent to urban areas (Table 9-15). These IRFs had aggregate Medicare margins of 16.1 percent compared with 9.0 percent for urban IRFs and 4.3 percent for IRFs in micropolitan areas. Rural IRFs in areas adjacent to urban areas had the lowest

**TABLE  
9-15**

**Medicare margins, cost and payment per case for IRFs in rural and urban areas, 2010**

	Rural			
	Urban	Micropolitan	Adjacent to urban	Nonadjacent to urban
Medicare margin	9.0%	4.3%	-5.6%	16.1%
Cost per case	\$15,517	\$16,098	\$21,963	\$14,630
Payment per case	\$17,046	\$16,828	\$20,801	\$17,445

Note: IRF (inpatient rehabilitation facility). Cost and payment per case are unadjusted for wages, case mix, and outliers.

Source: MedPAC analysis of cost report data from CMS.

margins at -5.6 percent, the highest cost per case, and the highest payment per case. These data suggest that the rural adjustment is not having a uniform impact on all IRFs in rural areas. However, the averages for the rural adjacent and nonadjacent categories are more affected by individual facility variation because of the small number of facilities in those categories.

We also assessed the relationship between all payer, or total, volume and Medicare margins and whether this relationship differs for IRFs in urban and rural areas. For urban and rural IRFs, margins increased as total volume increased (Table 9-16). Urban and rural IRFs in the lowest and second lowest quintiles of volume had negative margins. Margins for urban and rural IRFs in the fourth volume quintile were healthy, while margins were in the double digits for IRFs with the highest volume. These results are consistent with those of our standardized cost analysis, which shows that IRFs with large margins tended to have economies of scale.

These data suggest that the rural adjustment for IRFs is not well targeted. It appears that low volume, rather than rural status alone, affects an IRF's ability to operate with a healthy Medicare margin. Table 9-16 demonstrates that volume is a strong determinant of whether an IRF operates with a positive or negative margin and of the magnitude of the Medicare margin. This trend was consistent for urban and rural IRFs.

### Medicare margins for 2012

To project the aggregate Medicare margin for 2012, we model the policy changes that will go into effect in 2011 and 2012. These policies include:

- increasing payment rates for fiscal year (FY) 2011 by 2.16 percent, the net result of a 2.5 percent market basket update, a 0.25 percent market basket reduction per the Patient Protection and Affordable Care Act of 2010 (PPACA), and an estimated 0.09 percent payment decrease due to lower outlier payments;<sup>10</sup> and
- increasing payment rates for FY 2012 by 2.2 percent, the net result of a 2.9 percent market basket update, a 0.1 percent market basket reduction per PPACA, a -1.0 percent market basket reduction for productivity per PPACA, and an estimated 0.4 percent payment increase due to changes in the outlier threshold.<sup>11</sup>

We project that aggregate Medicare margins in 2012 will decline from 8.8 percent in 2010 to about 8.0

**TABLE  
9-16**

### Medicare margins for urban and rural IRFs by total volume, 2010

Total (all payer) volume	Median Medicare margin	
	Urban	Rural
Lowest quintile	-16.1%	-28.7%
Second quintile	-5.4	-8.8
Third quintile	1.4	-3.4
Fourth quintile	9.3	2.4
Fifth quintile	18.6	16.0

Note: IRF (inpatient rehabilitation facility).

Source: MedPAC analysis of cost report data from CMS.

percent in 2012. The projected decrease in the margin is largely the result of the PPACA provision that reduces the market basket update by 0.25 percent in 2011 and by 0.1 percent in 2012 and the PPACA provision to reduce IRF payments in 2012 to reflect productivity gains. The margin projection for 2012 assumes that costs will increase by the market basket and does not assume increased cost control efforts by IRFs in response to the market basket reductions or the economy. To the extent that IRFs restrain their cost growth in response to economic pressures, the projected 2012 margin could be higher than we have estimated.

### How should Medicare payments change in 2013?

Our indicators of Medicare payment adequacy for IRFs are positive. FFS payments to IRFs increased in 2010, supply and capacity are relatively stable and adequate to meet demand, and volume is relatively stable as well. Risk-adjusted quality measures indicate that quality of care improved between 2004 and 2009, although further improvements in quality can be made. Access to credit appears adequate for hospital-based and freestanding IRFs. Finally, we calculate a margin of 8.8 percent in 2010 and project a margin of 8.0 percent for 2012. On the basis of our assessment of the indicators of payment adequacy, we conclude that IRFs should be able to accommodate cost changes in fiscal year 2013 with payments held at 2012 levels.

## RECOMMENDATION 9

**The Congress should eliminate the update to the Medicare payment rates for inpatient rehabilitation facilities in fiscal year 2013.**

## RATIONALE 9

Our indicators of Medicare payment adequacy are positive. Capacity remains adequate to meet demand. Although IRFs' efforts to meet the compliance threshold since 2004 had a significant impact on IRF volume, this decline was consistent with the underlying reason for the compliance threshold—to direct the most clinically appropriate types of cases to this intensive, costly setting. With the compliance threshold permanently set at 60 percent, Medicare FFS IRFs remained relatively stable in 2010 and FFS spending on IRFs increased by 4.8 percent. Our projected 2012 aggregate Medicare margin is about 8.0 percent, down slightly from an estimated 8.8 percent in 2010. To the extent that IRFs restrain their cost growth in response to fiscal pressure from PPACA's market basket reductions and productivity adjustment or the economic downturn, the projected 2012 margin could be higher than we have estimated. On the basis of these analyses, we believe that IRFs could absorb cost increases and continue to provide care to clinically appropriate Medicare cases with no update to payments in 2013. We will closely monitor our payment update indicators and will be able to reassess our recommendation for the IRF payment update in the next fiscal year.

## IMPLICATIONS 9

### Spending

- The payment update for IRFs under current law in FY 2013 consists of a forecasted 2.9 percent market basket update for rehabilitation, psychiatric, and long-term care hospitals; a forecasted 0.9 percent productivity adjustment decrease off the market basket update; and a 0.1 percent market basket reduction per PPACA.<sup>12</sup> This recommendation would decrease federal program spending relative to current law by between \$50 million and \$250 million in 2013 and by less than \$1 billion over five years. The spending implication of this recommendation is based on Medicare spending projections that were made prior to a sequester, as the recommendation was developed and voted on before the sequester was triggered and became current law. If a Medicare sequester does occur, it will change the spending implication of the recommendation.

### Beneficiary and provider

- We do not expect this recommendation to have adverse impacts on Medicare beneficiaries with respect to access to care or out-of-pocket spending. This recommendation may increase the financial pressure on some providers, but overall a minimal effect on providers' willingness and ability to care for Medicare beneficiaries is expected. ■

## Endnotes

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- 1 This rule does not take the place of Medicare's general medical necessity requirements.
- 2 The 13 conditions are stroke; spinal cord injury; congenital deformity; amputation; major multiple trauma; hip fracture; brain injury; neurological disorders (e.g., multiple sclerosis, Parkinson's disease); burns; three arthritis conditions for which appropriate, aggressive, and sustained outpatient therapy has failed; and hip or knee replacement when bilateral, body mass index  $\geq 50$ , or age 85 or older. These conditions may count toward an IRF meeting the compliance threshold if they are being actively treated in conjunction with the condition that is the primary cause for admission. For more information on Medicare's IRF payment system, see the Commission's payment basics document at [http://www.medpac.gov/documents/MedPAC\\_Payment\\_Basics\\_11\\_IRF.pdf](http://www.medpac.gov/documents/MedPAC_Payment_Basics_11_IRF.pdf).
- 3 The proprietary data come from eRehabdata.com, which has data on a subset of IRFs that subscribe to their inpatient rehabilitation outcomes system. eRehabdata.com has developed a protocol to assess whether a case satisfies the compliance threshold.
- 4 Source: MedPAC analysis of the Inpatient Rehabilitation Facility–Patient Assessment Instrument. Annual percent changes in average case mix are for the first half of one year to the first half of the following year.
- 5 The other five CMGs are for short-stay patients or patients who expire while in the IRF and payment for those CMGs does not differ across tiers.
- 6 Scores for each of the 18 FIM items range from 1 (complete dependence) to 7 (independence). The scores on the 18 measures are summed to calculate a total score.
- 7 These comorbidities were identified by Elixhauser and colleagues (1998) and include congestive heart failure, valvular disease, pulmonary circulation disorders, peripheral vascular disorders, hypertension, paralysis, other neurological disorders, chronic pulmonary disease, diabetes (uncomplicated), diabetes (complicated), hypothyroidism, renal failure, liver disease, peptic ulcer disease excluding bleeding, AIDS, lymphoma, metastatic cancer, rheumatoid arthritis/collagen diseases, coagulopathy, obesity, weight loss, fluid and electrolyte disorders, blood loss anemia, deficiency anemia, alcohol abuse, drug abuse, psychoses, and depression.
- 8 These conditions were identified by Iezzoni and colleagues (1994) and include postoperative pulmonary compromise; postoperative gastrointestinal hemorrhage; cellulitis or decubitus ulcer; septicemia; pneumonia; mechanical complications due to a device, implant, or graft; shock or arrest in the hospital; postoperative acute myocardial infarction (AMI); postoperative cardiac abnormalities other than AMI; venous thrombosis and pulmonary embolism; procedure-related perforation or laceration; acute renal failure; delirium; and miscellaneous complications.
- 9 Total margins for hospital-based units also reflect the total margins for the entire hospital rather than for the IRF unit. For that reason, we do not present total margins for hospital-based units, as they do not reflect the total margin on IRF services.
- 10 In the fiscal year 2011 IRF final rule, CMS projected that actual outlier payments in fiscal year 2010 would be 3.1 percent of total payments. Consequently, CMS adjusted the outlier threshold for fiscal year 2011 to achieve the standard target of outlier payments equaling 3.0 percent of total payments for fiscal year 2011. This adjustment is projected to result in a 0.09 percent decrease in total IRF payments in 2011 relative to 2010.
- 11 In the fiscal year 2012 IRF final rule, CMS projected that actual outlier payments in fiscal year 2010 would be 2.6 percent of total payments. Consequently, CMS adjusted the outlier threshold for fiscal year 2011 to achieve the standard target of outlier payments equaling 3.0 percent of total payments for fiscal year 2011. This adjustment is projected to result in a 0.4 percent increase in total IRF payments in 2012 relative to 2011.
- 12 This market basket forecast and productivity adjustment were made in the fourth quarter of 2011. CMS will use the most recent forecast available when setting updates, which may differ from the number we report here.

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