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University of Pittsburgh Physicians
Department of Physical Medicine & Rehabilitation
Office of the Chairman

Part of
UPMC Health System

Ross D. Zafonte, D.O.
Professor

JUN 2 9 2007

June 28, 2007

Centers for Medicare & Medicaid Services
Department of Health and Human Services
7500 Security Boulevard
Mail Stop: C4-26-05
Baltimore, MD 21244-8012

Via: UPS Delivery and
http://www.cms.hhs.gov/eRulemaking

ATTENTION: CMS-1551-P

RE: CMS-1551-P
Medicare Program; Inpatient Rehabilitation Facility Prospective Payment System for Federal Fiscal Year 2008
(Federal Register/Vol.72 No.88/May 8, 2007 pages 26229-26279)

Dear Sir or Madam:

On behalf of the University of the Pittsburgh Department of Physical Medicine and Rehabilitation we are submitting one original and two copies of our comments regarding the Center for Medicare and Medicaid Services (CMS) proposed rule (Federal Register / Vol. 72, No. 88 / May 8, 2007 pages 26229 - 26279) "Inpatient Rehabilitation Facility Prospective Payment System for Federal Fiscal Year 2008". We also are submitting these comments electronically to http://www.cms.hhs.gov/eRulemaking.

The following is a brief summary of the University of the Pittsburgh Department of Physical Medicine and Rehabilitation's position and concerns regarding the major provisions of the FY2008 proposed rules, with more detailed responses in subsequent pages.

Inpatient rehabilitation facilities have gone through a substantial transition period to maintain compliance with the "75% rule." Evidence suggests a decrease in the number of Inpatient Rehabilitation cases between 2004 and 2005 that approximates 9%. The potential changes in the exclusion of comorbidities as well as the full implementation of the rule at 75% raises several concerns.

Effective July 01, 2008, inpatient rehabilitation facilities must comply with the 75% rule, at the same time they will no longer be able to count patients with comorbidities in the one of the 13 conditions toward compliance. This is inappropriate, lacks clinical logic, and will effectively restrict certain Medicare beneficiaries from receiving services to which they are entitled under Medicare. The original 13 diagnoses were used to identify **most** patients for whom medicare will cover an inpatient rehabilitation stay, however, do not include all patients who need or can benefit from intense rehabilitation. Indeed, since the majority of those diagnoses were established in the 1980s and were felt to be catastrophic at that time, it is clear to us that this should occur as a progressive dynamic dialogue with diagnoses moving in and out of this category over a period of years. In addition, we are concerned that this present change in clinical practice has not been proven either safe or efficacious in the literature and examples will be cited below.

Overall, the full implementation of the rule has a potential to harm medicare beneficiaries as well as slow the evidentiary basis for the most cost-effective and efficacious treatment sites for patients. In conducting this analysis, we urge CMS to be as open and transparent as it can be, in evaluating both the "qualifying diagnoses" list as well as its strategy for addressing qualifying comorbidities. Beneficiaries who have sustained a significant catastrophic event with multiple comorbidities, such as a solid organ transplant, and who do require inpatient rehabilitation, will be denied services as "non-qualifying" should the unit to which they apply be unable to match their case with the correct proportion of "qualifying" cases. Clearly such a person meets the definition of a catastrophic event. Other examples exist such as a person with severe multiple sclerosis who has experienced a comminuted fracture. There is a need for us to fully appreciate and understand the not only short-term cost basis, but the long-term implications of changing sites for rehabilitation for patients with comorbidities.

We feel that it is most important to develop not only broader dynamic diagnostic and functional criteria, but also to be able to subset patients who are at high-risk for negative outcome in alternative settings and those who are more likely to benefit from inpatient rehabilitation. We fully realize, however, that this longer-term work would result in some patients eventually being excluded from the inclusion criteria because data would reflect that that category of patients no longer need such services. This would reflect the real and dynamic process of medical care rather than artificial inclusion criteria developed over two decades ago.

We urge CMS to work towards developing these more appropriate criteria that reflect the changes in clinical practice and resource utilization. We also strongly encouraged CMS to evaluate the longer-term impact on both cost and patient care as well as outcome of these changes.

We appreciate the opportunity to submit these comments on your proposed changes to the "Inpatient Rehabilitation Facility Prospective Payment System for Federal Fiscal Year 2008" and hope they are considered before any final rule is adopted.

Sincerely,

Ross Zafonte, D.O.
Professor and Chairman, Department of Physical Medicine and Rehabilitation

Vice-President, Clinical Rehabilitation Services, UPMC Health System

Executive Director, UPMC Institute for Rehabilitation & Research

CC: Concordia, Elizabeth
Farner, David M.
Huber, George
Karlovich, Edward
Kennedy, Robert A.
Lewandowski, Christine
Magee, Nancy
Stimmel, Paul
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UPMC | University of Pittsburgh Medical Center

JUN 29 2007

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Chief Financial Officer
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June 28, 2007

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Department of Health and Human Services
7500 Security Boulevard
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The following is a brief summary of UPMC's position and concerns regarding the major provisions of the FY2008 proposed rules, with more detailed responses in subsequent pages.

Inpatient rehabilitation facilities have gone through a substantial transition period to maintain compliance with the "75% rule." Evidence suggests a 9% decrease in the number of Inpatient Rehabilitation cases between 2004 and 2005 in the period after these changes were effected. Full implementation of the rule at 75% raises several concerns which will be further aggravated by proposed changes in the exclusion of certain comorbidities. These concerns center on the limitation of access to a specific Medicare benefit by beneficiaries.

Effective July 01, 2008, inpatient rehabilitation facilities must comply with the 75% rule. At the same time they will no longer be able to count patients with comorbidities among the 13 qualifying conditions toward compliance. This is inappropriate, lacks clinical logic, and will effectively restrict certain Medicare beneficiaries from receiving services to which they are entitled under Medicare.

The original 13 diagnoses were used to identify ***most*** patients for whom Medicare would cover an inpatient rehabilitation stay. The structure of the rule acknowledged that it was expected some proportion of patients entitled to receive Inpatient Rehabilitation Services would not be identified by that original list. Further, the original list of diagnoses, established in the late 1970's, were felt to represent catastrophic illnesses at that time. It is clear that the intent of the original ruling was to assure medically appropriate inpatient rehabilitation services to catastrophically affected Medicare beneficiaries, only ***most*** of whom would be represented among the original list of conditions.

The evolution of medical and clinical science would certainly suggest that the agreement around "qualifying" conditions and admission eligibility levels should result from a progressive and dynamic dialogue among the parties. Diagnoses would be expected to migrate into and out of the list of qualifying conditions as clinical practice evolves. The change in standard of care which will result from the proposed rule has not been proven either safe or efficacious in the literature. Further, there are conditions routinely treated in Medicare beneficiaries today with procedures which were unimaginable at the time of the original rule, such as end stage liver disease being managed with orthotopic liver transplantation.

The full implementation of the rule as proposed has the potential to harm Medicare beneficiaries and will certainly slow the gathering of sound clinical evidence for the most cost-effective and efficacious treatment strategies and venues for these patients. In conducting this analysis, we urge CMS to be open and transparent in evaluating both the "qualifying diagnoses" list as well as its strategy for addressing qualifying comorbidities.

Beneficiaries who have experienced a catastrophic event with multiple comorbidities, such as solid organ transplantation, and who require inpatient rehabilitation under the current standards of clinical practice, will be denied services as "non-qualifying" should the unit to which they apply be unable to match their case with the correct proportion of "qualifying" cases. The likelihood of a Medicare beneficiary being denied services that a similar beneficiary may have accessed purely based on the unit's current standing with respect to the 75% rule is not appropriate.

In the proposed scenario, these beneficiaries will receive rehabilitation services in alternative settings which are not prepared to manage the intensity of their medical rehabilitation needs. Currently, there is little understanding of the impact of poor rehabilitation outcomes, increased readmissions and increased complication rates these patients may experience.

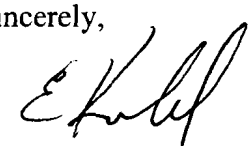
It is most important for CMS to develop a strategy for dynamic evolution of correct diagnostic and functional criteria for inpatient rehabilitation services. This strategy should allow an accurate reflection of the state of clinical management of catastrophic and disabling conditions. It should also consider patients who are at high-risk for negative outcomes in alternative settings to acute inpatient rehabilitation. This would mirror the dynamic evolution of medical care rather than support static inclusion criteria developed over two decades ago. While we recognize that this will certainly

result in some patients being excluded from the "qualifying" categories, it will be a more fair apportionment of this benefit among Medicare recipients.

We urge CMS to work towards developing more appropriate criteria that both reflect the changes in clinical practice and meet CMS's resource utilization goals in a way that is more equitable to all Medicare beneficiaries. We also strongly encourage CMS to evaluate the longer-term impact of the proposed changes on both cost as well as patient outcomes.

We appreciate the opportunity to submit these comments on your proposed changes to the "Inpatient Rehabilitation Facility Prospective Payment System for Federal Fiscal Year 2008" and hope they are considered before any final rule is adopted.

Sincerely,



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June 29, 2007

Centers for Medicare & Medicaid Services
Department of Health and Humans Services
Attention CMS-1551-P
P.O. Box 8012
Baltimore, MD 21244-8012

Re: File Code CMS-1551-P

Comments to Proposed Rule 72 FR 26230, Inpatient Rehabilitation Facility Prospective Payment System for Federal Fiscal year 2008

We appreciate the opportunity to provide comments on the proposed changes to the Inpatient Rehabilitation Facility Prospective Payment System that were published in the May 8, 2007 Federal Register.

"75 Percent Rule Policy"

We thank CMS for requesting comments on the current policy to continue to use co-morbidities in calculating the compliance percentage. It is important that patients who can tolerate and need the inpatient rehabilitation level care receive it. Therefore, we respectfully request that CMS continue the use of co-morbidities in calculating the 75 percent compliance threshold.

Without the co-morbid condition criteria as an option, a large percentage of patients who may benefit from inpatient rehabilitation may be excluded. For example, a patient with a progressive neurological condition such as Amyotrophic Lateral Sclerosis may experience a significant deterioration in function due to a prolonged hospitalization after aspiration pneumonia. Debility and Amyotrophic Lateral Sclerosis both contribute to the need for inpatient rehabilitation. Unfortunately, the relative contribution of each condition to the patient's functional impairments cannot be determined. In some instances, debility associated with the prolonged hospitalization is the primary impairment requiring inpatient rehabilitation. Nonetheless, the pre-existing amyotrophic lateral sclerosis is a significant co-morbidity. If inclusion of co-morbidities is deleted from the 75% rule compliance calculation, patient's such as this will be inappropriately excluded from inpatient rehabilitation.

*****

Thank you for the opportunity to comment on this proposed rule and for consideration of our comments. If you have any questions, please contact me at (507) 284-1871.

Very truly yours,

Brenda Mickow/rpv

Brenda Mickow
Manager, Medicare Strategy Unit

BM:rpv

L/dept/sal/bmickow/ltr/2008 IRF Proposed Comments

HAP

THE HOSPITAL & HEALTHSYSTEM ASSOCIATION OF PENNSYLVANIA

July 2, 2007

Leslie Norwalk, Esq.
Acting Administrator
Centers for Medicare & Medicaid Services
Hubert H. Humphrey Building
200 Independence Avenue, SW, Room 445-G
Washington, DC 20201

Re: (CMS-1551-P) Medicare Program; Inpatient Rehabilitation Facility Prospective Payment System for Fiscal Year 2008; Proposed Rule (Vol. 72, No. 88), May 8, 2007

Dear Ms. Norwalk:

On behalf of The Hospital & Healthsystem Association of Pennsylvania (HAP), which represents nearly 250 Pennsylvania member institutions, including 125 stand-alone hospitals and another 120 hospitals that comprise 32 health systems across the state, we appreciate the opportunity to comment to the Centers for Medicare & Medicaid Services (CMS) on this fiscal year 2008 inpatient rehabilitation facility prospective payment system (IRF PPS) proposed rule. Our membership includes more than 80 inpatient rehabilitation units and hospitals.

First and foremost, we urge regulatory action on the "75% Rule," including:

- Identification by CMS of the clinical characteristics of patients who currently fall outside of the qualifying conditions and yet are appropriate for inpatient rehabilitation, as recommended by the Medicare Payment Advisory Commission;
- Timely review and updating of the qualifying conditions to ensure that patients who need, can tolerate, and will benefit from inpatient rehabilitation have the opportunity to do so; and
- Permanent extension of the rule's comorbidity provision so that IRFs can continue to provide intense rehabilitation to individuals who will benefit from it and not risk non-compliance with the 75% Rule as a consequence, and even loss of IRF status.

IRFs provide an level of rehabilitation services, an intensity of focus on multi- and interdisciplinary rehabilitation designed to support individuals in returning to home and maximum independence, and an expertise in speech, occupational, physical, and other supports for return to independent living not available *in any other setting*. Pennsylvania

IRFs support access to the right care at the right time for the right individuals, and sometimes these criteria are met by individuals whose diagnoses do not qualify them to count toward the compliance threshold. We urge CMS to modernize the list of qualifying conditions and to continue to include the comorbidity provision in calculation of IRF compliance with the 75% Rule.

HAP appreciates the opportunity to comment on the proposed rule. If you have any questions, please feel free to contact Cheri Rinehart, vice president, integrated delivery systems, at (717) 561-5325, or crinehart@haponline.org.

Sincerely,

Cheri L. Rinehart

CHERI L. RINEHART
Director
Integrated Delivery Systems

CLR/dd

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CMS-1551-P-43

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Charles N. Kahn III
President

July 2, 2007

VIA HAND DELIVERY

The Honorable Leslie V. Norwalk, J.D.
Acting Administrator
Centers for Medicare & Medicaid Services
Department of Health and Human Services
Rom 445-G Hubert H. Humphrey Building
200 Independence Avenue, S.W.
Washington, DC 20201

RE: ***CMS–1551-P; 42 CFR Part 412, Medicare Program; Inpatient Rehabilitation Facility Prospective Payment System for Federal Fiscal Year 2008; Proposed Rule***

Dear Ms. Norwalk:

The Federation of American Hospitals ("FAH") is the national representative of investor-owned or managed community hospitals and health systems throughout the United States. Our members include teaching and non-teaching, short-stay full-service community, long-term care, rehabilitation and psychiatric hospitals in urban and rural America, and provide a wide range of ambulatory, acute and post-acute services. We appreciate the opportunity to comment on the Centers for Medicare and Medicaid Services' ("CMS") proposed rule on Inpatient Rehabilitation Facility (IRF) Prospective Payment System for Fiscal Year 2008.

I. 75 Percent Rule Policy

For cost reporting periods beginning on or after July 1, 2008, comorbidities will not be eligible for inclusion in the calculations used to determine if the provider meets the 75 percent compliance threshold specified in § 412.23(b)(2)(ii). CMS has specifically asked for comments supporting current policy or other options,

including use of some or all of the existing comorbidities in calculating the compliance percentage for an additional fixed period of one or more years to integrate the inclusion of some or all of the existing comorbidities on a permanent basis.

The FAH strongly supports CMS' current policy which allows a patient with a comorbid condition that falls within one of the 13 qualifying conditions and causes a significant decline in the patient's functional ability to be counted toward the compliance threshold of a particular rehabilitation hospital. These patients have been correctly identified as patients who need intensive rehabilitation and who can benefit from treatment at the IRF level of care. Any discontinuation of the comorbidities provision would compromise the functional integrity of inpatient rehabilitation by unnecessarily excluding a patient population whose care cannot be appropriately performed in another setting. The FAH urges that CMS permanently include cases with comorbid conditions meeting the existing criteria among those cases qualifying under the compliance threshold.

In addition, the FAH supports MedPAC's recommendation to move away from simple diagnosis-based criteria and focus on developing more specific patient criteria by examining patients whose diagnoses are not in one of the 13 specified conditions in order to ascertain whether certain patients in these groups could also appropriately receive IRF-level care. The FAH believes that notwithstanding current statutory language, until such time as CMS has redefined the conditions and comorbidities that are appropriately treated in an IRF, whatever means necessary should be taken to maintain the compliance threshold at 60%. Further, the FAH would urge CMS to exercise its administrative authority and expand the qualifying conditions based on key clinical indicators of medical necessity.

There also appears to be a discrepancy and some confusion between CMS' compliance threshold rule to establish an IRF's exemption from inpatient PPS and the Fiscal Intermediary's (FIs) review of medical necessity admission criteria, both of which are being measured by the FIs. For patients who meet one of the 13 conditions outlined in the compliance threshold rule, CMS has determined that it is appropriate to reimburse the IRF for services provided to those patients. The FAH can provide CMS with many examples of cases that have met CMS compliance threshold and presumptive eligibility requirements determined by the FI, yet have been denied by the same FI for medical necessity. The FAH strongly recommends that CMS work closely with the FIs to develop a clear, common system for FIs to use to determine not only the compliance threshold but medical necessity as well, and that it conform to HCFA Ruling 85-2.

II. Classification System for the Inpatient Rehabilitation Facility Prospective Payment System

In calculating the IRF PPS relative weights and average lengths of stay for the FY 2008 IRF PPS, CMS is proposing to use the same case-mix classification system that was used in FY 2007. Because the revisions in FY 2007 only resolved some minor discrepancies identified in RAND's post-implementation review and did

not implement additional refinements, CMS believed at the time that it was appropriate to continue to use the same data that was used for the FY 2006 IRF PPS final rule. The data used for this calculation was derived from FY 2003 data. The 2003 data does not reflect volume and case-mix changes that have occurred in the rehabilitation industry since the enforcement of the 75% Rule. The FAH reiterates its concern that CMS is not updating weights and average lengths of stay with the most recent available data.

In the FY 2007 Final Rule on IRF PPS, in response to this same comment, CMS states, "We agree that, in the future, any rebasing or recalibration of the system should be done using the most current available data." 71 Fed. Reg. 48362 (August 18, 2006). The IPPS is updated annually utilizing claims for the most recently completed Federal fiscal year (FFY), which in the case of IPPS for FY 2008 are claims data from FY 2006 (12 months ending 9/30/2006). FY 2003 IRF data is now at least three years older than the data used to develop the same numbers for the IPPS. The FAH strongly suggests using 2006 IRF claims and IRF-PAI data in rebasing the IRF classification system for FY 2008.

III. High-Cost Outliers Under the IRF PPS

CMS proposes to update the outlier threshold amount to $7,522 to decrease estimated outlier payments from CMS' estimate of approximately 3.8% to 3% of total estimated aggregate IRF payments for FY 2008.

The FAH supports CMS' decision to establish an outlier pool at 3% of total IRF payments. However, the FAH has some concerns that the age of the data that CMS is utilizing could lead to aberrant results, specifically at a facility level. The FAH has the following recommendations to increase the accuracy in projecting outlier payment for FY 2008 and beyond:

- Utilize the latest available claims data. The proposed rule indicates that CMS is using the FY 2005 claims in estimating the 2008 threshold. The FY 2008 IPPS proposed threshold was developed using FY 2006 claims. The significant changes in volume that IRFs are experiencing because of the transition to the 75% rule make this recommendation all the more critical.

- Utilize the same concepts that the IPPS uses for modeling charge increases and cost-to-charge ratio (CCR) changes but base the percentage change on IRF-specific information. The significant changes in IRF volume and operations likely result in IRF-specific information that is vastly different from IPPS data. For example, with the large volume declines that IRFs have been experiencing, the CCRs may be increasing rather than declining as they are in the IPPS. If the ratio of cost-to-charges increases then outlier payment would also increase.

The FAH would encourage CMS to review Attachment A to this comment letter. Attachment A is a recommended approach to project CCRs using more current data in a less complicated approach. A review of the proposed 2008 and final 2007 IRF rate setting file indicated that over 54% of the IRF providers with a change in their CCR saw an increase in outlier payments in 2008.

The FAH also requests that CMS make information available in future IRF rulemaking that would allow the industry to fully review CMS' proposals for the outlier threshold as is done for IPPS. At a minimum, the information needed is:

- The actual charge increase and CCR declines that have been utilized in the outlier threshold calculation. This would include a discussion of the data sources and periods used in the proposed regulation.

- A MedPAR file for IRF-specific patients. Consistent with the current IPPS MedPAR file that has the actual DRGs paid in FY 2006 (actual year), the DRG for FY 2007 (estimated year) and the proposed DRG for FY 2008 (proposed year), the IRF MedPAR file should contain the actual total payments made, payments made for outliers, and the CMG assignment for an actual year, an estimated year and a proposed year.

- Historical information on IRF facility-level payment factors specifically including the CCRs.

The FAH also requests that CMS report the actual outlier payments and the percentage of outlier payments by Federal fiscal year in the final IRF regulation. Since actual claims level data was not available, the FAH has reviewed this information from the 3/31/07 HCRIS database for hospital year ends in calendar years 2004 through 2006. The information, as summarized in the following table, indicates that outlier payment were well below the 3% outlier pool for cost reports ending in 2004 and 2005. The information could indicate that outlier payments will exceed the 3% pool for cost reports ending in 2006. However, less than half of all IRF providers had HCRIS data available for the period. Utilizing actual claims data is preferable to HCRIS since it will show the actual payments per Federal fiscal year.

CALENDAR YEAR 2004 THROUGH 2006 OUTLIER DATA FROM THE HCRIS DATABASE				
Cost Report Year End	**Total Payments**	**Outlier Payments**	**Outlier Percentage**	**Number of Cost Reports in HCRIS**
2004	$6,576,460,332	$127,990,231	1.9%	1,236
2005	6,301,900,006	117,590,667	1.9%	1,229
2006	2,789,081,704	99,186,354	3.6%	588
Grand Total	$15,667,442,042	$344,767,252	2.2%	3,053

Outlier Reconciliation

In the FY 2008 IRF PPS proposed rule, CMS is informing providers that it will soon be issuing instructions to fiscal intermediaries to begin reconciling IRF outlier payments. The FAH supports CMS' decision to review outlier payments for vulnerabilities in the outlier payment policy. However, the FAH suggests that CMS focus its efforts on claims for discharges on or after October 1, 2003 because of the incorporation of significant changes and improvements to the outlier system on this date.

Additionally, the FAH strongly recommends that any reconciliation of outlier payment be done on a limited basis as is done in the IPPS system. CMS agreed with this principle in relation to the reconciliation of IPPS outlier payments. In the June 9, 2003 Federal Register CMS states, "We acknowledge the commenters' concerns about the administrative costs associated with reprocessing and reconciling all inpatient claims and the desirability of limiting which hospitals' outlier payments will be reconciled. Therefore, we agree that any reconciliation of outlier payments should be done on a limited basis." 68 Fed. Reg. 34503 (June 9, 2003).

Subsequent to this regulation, CMS has issued a Program Memorandum (PM A-03-058 dated July 3, 2003) and two Transmittals (Trans. #707, CR 3966 dated October 15, 2005; Trans. #1072, CR 3966 dated October 6, 2006) implementing a policy of limited reconciliation for IPPS. One Program Transmittal has been issued for IRF, Transmittal #263, Change Request 3378 dated July 30, 2004. These notices indicate that reconciliation would be limited to facilities that received over $500,000 in outlier payments in a given cost report year and whose actual cost-to-charge ratios are found to be plus or minus 10 percentage points from the CCRs used during the time period to make actual payments. The FAH reviewed the HCRIS data for cost reports ending in 2004 through 2006. The HCRIS data indicates that limiting outlier reconciliation to facilities that received over $500,000 in outlier payments would result in a review of approximately 5% of IRF providers but would include approximately 38% of the IRF outlier payments. The table below summarizes these results.

CALENDAR YEAR 2004 THROUGH 2006 OUTLIER DATA FROM THE HCRIS DATABASE						
	Cost Reports with > $500,000 in IRF Outlier Payments		**All IRFs**		**Percentage with > $500,000 in Outlier Payments**	
Cost Report Year End	**Outlier Payments**	**Cost Reports**	**Outlier Payments**	**Cost Reports**	**Outlier Payments**	**Cost Reports**
2004	$49,302,827	52	$127,990,231	1,236	39%	4%
2005	43,713,787	46	117,590,667	1,229	37%	4%
2006	37,078,042	42	99,186,354	588	37%	7%
Total	**$130,394,656**	**140**	**$344,767,252**	**3,053**	**38%**	**5%**

In summary, the FAH would strongly recommend that CMS limit outlier reconciliation to the current thresholds because of the administrative burden associated with recalculating outlier payments on a claim-by-claim basis. The FAH also requests that CMS include a provision under which IRFs can request a recalculation of outlier payments, particularly if the outlier reconciliation provision is not limited to a threshold amount.

IV. Clarification to the Regulation Text for Special Payment Provisions for Patients that are Transferred

Currently, the high-cost outlier adjustment applied to the unadjusted Federal prospective payment rate for transfer cases is not weighted to account for the length of stay of these patients. The FAH requests clarification of this policy to determine if CMS' true intent is a different application of the high-cost outlier adjustment for transfers in the IPPS and in the IRF PPS.

V. Provisions of the Proposed Regulations

On June 8, 2007 CMS released a memorandum titled, "Inpatient Rehabilitation Facility PPS and the 75 Percent Rule." In that memorandum CMS identifies the volume decreases as attributable to one of five condition categories: lower extremity joint replacement, miscellaneous, cardiac, osteoarthritis, and pain syndrome. The memorandum goes on to surmise that patients in these categories have access to and are receiving services in different settings, specifically the skilled nursing setting.

The FAH agrees that there has been a significant reduction in the number of patients that qualify in the aforementioned rehabilitation impairment categories. However, the FAH does not agree that SNF services are providing the needed beneficiary access to care.

In the context of the FY 2008 IRF PPS proposed rule, CMS states that one source of uncertainty in determining the impact of the 75% Rule is determining what proportion of patients would no longer be treated in IRFs, but would instead be treated in other, lower-cost post –acute care settings such as skilled nursing facilities or home health agencies. The FAH strongly recommends that further analysis be conducted to ensure that Medicare beneficiary access to the proper level of care is preserved.

VI. Regulatory Impact Analysis

CMS estimates that its proposed changes to the IRF PPS for FY 2008 would increase payments to IRF providers by $150 million. The FAH notes and appreciates CMS' efforts to be transparent in its rulemaking. However, the regulatory impact information provided is not sufficient to calculate the projected

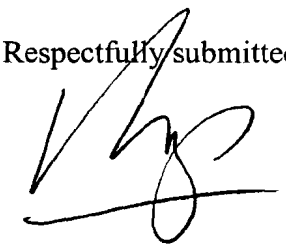
impact to individual providers. In order to project payment changes, FY 2006 actual, FY 2007 estimated and FY 2008 proposed payment information will be required. The FAH requests that CMS include enough factors and payment information to allow interested parties to recreate CMS' impact table and to make projections on a facility-specific basis.

The FAH also believes that CMS must make adequate information available for interested parties to fully review and comment on IRF PPS. We encourage CMS to utilize the information that is provided in the proposed IPPS rules as a model. Two specific items that must be available are: (1) a MedPAR file that includes the current year and proposed CMG if there are any grouping changes, and (2) IRF PAI data by patient that would allow claims to be regrouped and the data studied.

* * * * * *

We appreciate the opportunity to comment on this proposed rule and hope that the agency carefully considers the comments in this letter. If appropriate, we would welcome the opportunity to meet, at your convenience, to discuss our views. If you have any questions, please feel free to contact me or Steve Speil, Senior Vice President, Health Finance and Policy, of my staff at (202) 624-1529.

Respectfully submitted,



ATTACHMENT A

VI. OUTLIER THRESHOLDS: ADDENDUM II.A.4.d

CMS has proposed to establish the fixed-loss cost outlier threshold for FY 2008 as the prospective payment rate for the diagnosis related group ("DRG"), plus any indirect medical education ("IME") and disproportionate share hospital ("DSH") payments, and any add-on payments for new technology, plus **$22,940**. The present threshold, which has been in effect for all of FY 2007, is **$24,485**. In establishing the proposed FY 2008 threshold, CMS has proposed using the "charge methodology" that it began using for FY 2003, as "refined" for FY 2006 and as further refined for FY 2007. CMS is proposing to calculate the 1-year average annualized rate-of-change in charges-per-case from the last quarter of FY 2005 in combination with the first quarter of FY 2006 (July 1, 2005 through December 31, 2005) to the last quarter of FY 2006 in combination with the first quarter of FY 2007 (July 1, 2006 through December 31, 2007). According to CMS, the average annualized rate-of-change in charges per case between these periods was 7.26 percent, 15.04. percent over two years. Also, as in years past, CMS has proposed to use the hospital cost-to-charge ratio ("CCR") from the most recently available Provider Specific File ("PSF"), which for the Proposed Rule, is the December 2006 update. Further, in accordance with the modification made in the Final Rule for FY 2007, CMS has developed and applied an adjustment factor to be applied to the operating CCRs from the PSF; the proposed adjustment factor is 0.9912.

The FAH strongly supports and appreciates CMS's decision to develop an adjustment factor to be applied to the CCRs, in recognition of the fact that the CCRs have been declining in recent years. The FAH had noted this decline in its comments for a few years and had pointed out that the use of recent CCRs without an adjustment to recognize this fact was resulting in an overestimate of costs and a resulting outlier threshold that was set too high. Thus, the FAH commends CMS for making this refinement to the outlier threshold projection process.

While the modification to the methodology made by CMS last year was an important step towards making the outlier projections as accurate as possible, the FAH believes there is additional room for improvement. In the Proposed Rule, CMS has estimated that the outlier payments for FY 2007 will be 4.9 percent of actual total DRG payments. If this estimate were accurate, it would indicate that last year's refinement to the outlier projection methodology has brought the level of outliers significantly closer to the 5.1 percent target than in recent years. However, the FAH believes that this 4.9 percent is overstated.

As was done in support of its comments for the past few years, the FAH engaged Vaida Health Data Consultants ("VHDC") to model the outlier thresholds for FY 2008 using CMS's proposed methodology, to analyze whether this methodology could be improved, and to review CMS's estimates of final outlier payments made for FY 2006 and FY 2007 as discussed in the Proposed Rule. (The FAH has attached as Attachment C to this letter a copy of the outlier study ("Modeling FFY 2008 Outlier Payments") performed by VHDC for the FAH.) VHDC estimated that the outlier payment level for FY 2007 was 4.63 percent, almost .3 percent lower than the

estimate presented in the Proposed Rule. Based on communications with CMS staff, it appears that CMS did not use the most recent set of CCRs when calculating its estimate; instead it used CCR data as of October 1, 2006, while VHDC used CCR data as of January 1, 2007. The use of more recent CCR data appears to be the reason for the lower estimate developed by VHDC, and therefore the FAH believes that VHDC's estimate is more accurate.[1] If the estimate that outlier payments were only 4.6 percent of total DRG payments holds up, this shows that there is still room for significant improvement of the outlier projection methodology, since a .5 percent shortfall in outlier payments for FY 2007 represents $420 million lost by hospitals.[2]

The FAH believes that, while it is critical for an estimate of the projected decline in CCRs to be included as a part of the outlier projection methodology, the methodology for doing this that CMS has adopted could be improved. Several proposals for making the adjustment factor for declining CCRs more accurate are set forth below.

First, CMS has not used the most recent data available to develop the CCR adjustment factor. CMS is using a formula that uses the operating cost per discharge increase in combination with the final updated market basket increase determined by Global Insight, Inc., as well as the charge inflation factor. For FY 2008, as part of its methodology, CMS developed a 3-year average of the ratio between the market basket rate-of-increase and the increase in cost per case from the cost report, for periods from FY 2002 through FY 2005. This three-year average was then multiplied by the 2006 market basket percentage increase, and the result was divided by the 1-year average change in charges, resulting in an adjustment factor of 0.9912 that was applied to the CCRs from the PSF.

This formula is unnecessarily complicated and the use of the market basket data in addition to cost report data does not lead to a more accurate result. Further, the FAH believes that using more recent data would result in a more accurate projection. Accordingly, the FAH urges CMS to adopt the alternative methodology set forth in the FY 2008 VHDC Report, which uses a recent historical industry-wide average rate of change, the same approach that CMS uses to project charge inflation. Using the most recent data available, VHDC was able to compare the change in CCRs from October 1, 2005 to October 1, 2006 and determined that the average rate of change for this period was -2.08 percent for operating CCRs and -1.59 percent for capital CCRs. Using these values as annual projection factors, but otherwise maintaining the same

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[1] While it might appear unlikely at first blush that the use of data that was only one quarter more recent would have such a significant impact on the estimate of outliers for FY 2007, the FAH believes one factor contributing to this impact is the fact that the filing of cost reports for hospitals with rehabilitation units was delayed for some time and many such cost reports that had been delayed were then filed in the first quarter of FY 2007 (i.e., the last quarter of calendar year 2006).

[2] Further, this represents only a minor improvement over the outlier percentage for the previous year, as CMS has estimated that the percentage for FY 2006 was 4.5 percent. For the record, the FAH notes that VHDC has calculated that the outlier percentage for FY 2006 was 4.4 percent, which represents a payment shortfall of $649 million.

assumptions and methodology as CMS, VHDC determined that the FY 2008 fixed loss amount should be **$22,160**.[3]

Second, once determining the projected decline in CCRs, CMS has used the CCRs from the December 31, 2006 update of the PSF and then has projected the decline forward by one year for all hospitals. The FAH believes that this is an oversimplification and that the CCRs should be projected over different periods of time, some less or more than one year, based on variations in hospital fiscal year ends. As explained in the VHDC Report, if the December 31, 2006 update of the PSF is used as the base data from which to project the expected decline in CCRs for FY 2008, this file actually includes CCRs that will be used for a portion of FY 2008 for hospitals whose fiscal periods end on January 31, February 28 or March 31. For these three fiscal periods, the December 31, 2006 update of the PSF contains CCRs that would be used for, respectively, one month, two months and three months of FY 2008. Thus, to be more accurate, the projected decline in CCRs should be applied to only eleven months for January FYEs, ten months for February FYEs and nine months for March FYEs.

The situation is different for hospitals with fiscal periods ending in April through December. For those hospitals, the December 31, 2006 PSF contains their 2005 CCRs, which will be updated prior to the beginning of the FY 2008 fiscal year and used for part of that year, but then updated again during FY 2008 and used for the remainder of that federal fiscal year. Thus, for hospitals with the April through December fiscal periods, the data in the December 31, 2006 PSF must be updated for portions of the year by <u>two years</u>, rather than one year, in order to do an accurate projection of what their CCRs will be during FY 2008. The portion of the year that should be given a two-year update ranges from eight months for April year-ends down to one month for November year-ends. For hospitals with fiscal periods ending in December 31 only, it would be accurate to deflate the CCRs for a period of one year.

VHDC used this more accurate methodology to project the decline in CCRs that should occur in FY 2008. Because the public version of MEDPAR does not show the month of discharge, but only the quarter of discharge, VHDC calculated a weighted average "effective" CCR for each hospital. (CMS may be able to do this calculation more accurately if it has access to the actual month of discharge for each discharge.) Using this approach, in combination with the approach for estimating the rate of decline in CCRs discussed above, VHDC has estimated a fixed loss amount for FY 2008 of **$21,850**. *Based on currently available data, this is the most accurate estimate that VHDC is able to calculate, and the FAH recommends this as a more accurate estimate of what the outlier threshold for FY 2008 should be than the $22,940 threshold proposed by CMS.*[4]

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[3] It should be noted that this figure was calculated using the CMS's projected charge inflation estimate (i.e., 7.26 percent per year) as stated in the Proposed Rule. It is likely that updated data will result in a decrease in this estimate by the time that the Final Rule is published.

[4] The FAH notes that the difference between its recommendation and the threshold proposed by CMS is less than in prior years. This is, in part, because CMS has adopted the FAH's prior recommendations and made significant refinements to its outlier projection methodology. However, we believe that the difference of slightly more than $1,000 in the outlier threshold

Elsewhere in these comments, the FAH has suggested that CMS delay implementation of the proposed MS-DRGs. If this suggestion is followed and the MS-DRGs are not adopted for FY 2008, then there will have to be a recalculation of the outlier threshold using existing DRGs. Using the two methodological modifications to the outlier projection process that are suggested here, and using estimated v24 DRG weights developed by the Moran Company, VHDC has calculated what the outlier thresholds should be if the MS-DRGs are not adopted: **$25,285**. *See* VHDC Report, "Estimated 2008 Fixed Loss Amounts Under v24 DRGs," submitted herewith as Attachment D.

Third, the FAH urges CMS to use the most recent CCR data available from which to project the decline in CCRs. While the FAH has herein proposed what it believes to be more accurate methodologies for determining a projected decline in CCRs and then applying that projected decline to historical CCR data, the significance of the projection will decrease if CMS is able to use more recent CCR data as a basis for projecting the outlier thresholds. In its Proposed Rule, CMS has used CCRs from the December 31, 2006 PSF as a basis from which to project CCRs for the outlier projection. When doing its outlier projections for FY 2007, it appears that CMS used the March 2006 PSF when doing it projections in the Final Rule.[5] The FAH assumes that CMS will use data from the March 2007 PSF when calculating the outlier threshold that will be published in the Final Rule. If possible, the FAH urges CMS to use more recent CCR data, i.e., from the June 2007 PSF, as a basis for calculating the outlier threshold for FY 2008. The FAH believes that this will contribute to the accuracy of the calculation and will result in outlier payments being made closer to the 5.1 percent goal.

As suggested last year, the FAH once again suggests that CMS consider making mid-year, prospective adjustments to the outlier thresholds, if it appears that outlier payments are going to be significantly below or above the 5.1% target. As CMS made a mid-year change to the fixed loss threshold in FY 2004, it clearly has the ability to do so. After the fiscal year has begun, more current data on hospitals' cost-to-charge ratios will be available, so it should be possible to more accurately predict the amount of outlier payments that will be made. CMS could set a trigger for this adjustment. For example, if outlier payments appeared to be coming out at less than 95% or more than 105% of the 5.1% target, an adjustment would be made. The large discrepancies between outlier payments made and the 5.1% target, both positive and negative, that have occurred over the years could possibly be avoided if CMS tracked the situation mid-year and made an adjustment to the threshold with the goal of hitting the 5.1% target overall for the year. The FAH believes that a mid-year correction process could be an aid

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would still have a significant impact on the amount of additional outlier payments to be made to hospitals, because, as the threshold is lowered, each increment of reduction will result in more discharges being eligible for outlier payments than a similar increment of reduction to a higher level of threshold.

[5] The Final Rule, published on August 18, 2006, states that the March 2006 update will be used for projecting the outlier threshold, because it was the most recent data available at the time that the Final Rule was published. Although the actual outlier calculations were not completed until later because of the delay in finalizing the occupational mix adjustment, we assume that CMS still used the March 2006 update, rather than a more recent update, as it did not indicate otherwise when publishing the final outlier threshold in the October 11, 2006 Federal Register.

to CMS to achieve its goal of making outlier payments at 5.1% irrespective of the payment model that CMS employs. However, we believe there will likely be less need for a mid-year correction process if CMS were to adopt the suggestions herein. Particularly, if CMS is able to use more current CCR data as a basis for projecting outlier thresholds, thus decreasing the time period for projections must be made, the accuracy of the method to project the decline in CCRs will be less significant.

The FAH commends CMS for making improvements in recent years to the outlier projection methodology. The effectiveness of these improvements is reflected by the decreasing shortfalls in outlier payments from 2004 through 2007, as set forth in the following table:

IPPS Outlier Payments
FFY 2004 to FFY 2007

	Outlier Percentage			
Federal Fiscal Year	**CMS**	**FAH**	**Variance**	**Payment Shortfall in Billions (1)**
2004	3.5%	3.4%	0.1%	$ 1.40
2005	4.1%	3.8%	0.3%	1.10
2006	4.5%	4.4%	0.1%	0.65
2007 Projection	4.9%	4.6%	0.3%	0.42
Total				**$ 3.57**

(1) The payment shortfall was based on the FAH study payment percentage.

Despite the improvement, it appears there will be a shortfall of $420 million in FY 2007, which is a significant amount of payments denied to hospitals. Because each 0.1 percent shortfall in outlier payments represents about $100 million lost to hospitals, it is critical that CMS continue to refine its outlier projection methodology until it can consistently estimate outliers as close to the chosen target percentage as possible.

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May 29, 2007

MODELING FFY 2008 OUTLIER PAYMENTS

DATA SOURCES.

1. The MEDPAR 2006 computer file obtained from CMS. The file contains 13,293,609 records, each corresponding to a Medicare hospital discharge occurring in FFY 2006.

2. CMS FFY 2008 Impact File (Proposed Rule Version). This file produced by CMS shows the estimated level of FFY 2008 outlier payments by hospital (as percentages). It also shows the hospital-specific parameters used for calculating PPS payments, such as DSH and IME adjustment factors, cost to charge ratios (CCRs), wage indexes, etc.

3. The December 2006 update of the Provider Specific File. The file consists of data used by Fiscal Intermediaries to determine IPPS payments.

REPLICATION OF THE CMS ESTIMATED 2008 OUTLIER PAYMENT LEVELS (IPPS 2008 PROPOSED RULE).

The regular and outlier FFY 2008 payments were estimated for 11,138,692 discharges in the MEDPAR database subject to IPPS. These are the same discharges used by CMS to generate the 2008 Proposed Rule Impact File[6]. Regular payments were calculated based on the proposed DRG weight, the patient discharge destination (for identifying transfers), the applicable proposed standardized amounts and the other hospital-specific parameters determining PPS payments. The latter are the wage index, the non-labor cost of living adjustment, and the DSH and IME adjustment factors. Each of these parameters has different values applicable to operating and capital payments. The parameters were obtained from the CMS Impact File.

Outlier payments were calculated inflating 2006 charges by 15.04 percent (the inflation factor used by CMS) and projecting Impact File cost to charge ratios to 2008 (using the CCR projection factors from the 2008 Proposed Rule). The inflated charges were reduced to costs using the projected cost to charge ratios and compared to the proposed FFY 2008 fixed loss amount of $22,940. The latter was adjusted as appropriate on a hospital-specific basis.

[6] These are discharges subject to IPPS and with non-zero covered days and charges. The number of these discharges is the same as the number of "Bills" for virtually all the hospitals in the Impact File.

Following CMS's approach, the standardized amounts and capital rates were **not** reduced by the 2.4 percent coding improvement factor. This is an attempt to account for the shift of some cases currently in lower paying DRGs to higher paying DRGs because of assumed coding improvement. This would lead to lower outlier payments for these cases as the DRG payment itself improves. Since it is not possible to model the individual DRG shifts, CMS took "the across the board coding improvement" approach. If outlier payment were modeled with the proposed standardized amounts (reduced for coding improvement) the proposed 2008 outlier fixed loss amount would be higher.

With these assumptions, the FFY 2008 operating and capital outlier payments were estimated at 5.02 and 4.98 percent of the respective total payments, net of DSH and IME amounts. These estimates are in reasonable agreement with the CMS figures of 5.1 and 4.87 percent, respectively. The dollar amount of FFY 2008 outlier payments at the 5.1 percent level was estimated at $4,776B.

ESTIMATE OF THE FFY 2008 FIXED LOSS AMOUNT CHANGING THE PROJECTION PERIOD FOR THE COST TO CHARGE RATIOS.

Starting in FFY 2007 CMS recognized the need to account for the change over time in the cost to charge ratios. In the 2008 Proposed Rule CMS states that it is appropriate to project all CCRs for a period of one year. The cost to charge ratios were obtained from the December 31, 2006 update of the Provider Specific File. For many hospitals these CCRs need to be projected over periods of time other than one year in order to reflect the FFY 2008 CCRs more realistically. Assuming CCRs are updated nine months after the end of the hospitals' fiscal periods, hospitals with fiscal periods ending in January will be paid during October 2007 using their 2006 CCR (i.e., the CCR for the fiscal period ending January 31, 2006). Starting in November 2007, the 2007 CCR should be available and used through the remaining eleven months of FFY 2008. The December 31, 2006 Provider Specific File contains the 2006 CCRs of hospitals with fiscal periods ending in January. This actual CCR would be used for one month of the FFY 2008 while the projected value (simulating the CCR update on November 1, 2007) will be used for only eleven months of FFY 2008, not twelve as assumed by CMS. Similarly, the projected CCRs for hospitals with fiscal periods ending in February and March should be used only for ten and nine months of FFY 2008, respectively.

For hospitals with fiscal periods ending in April through December the situation is different. For hospitals with fiscal periods ending in April, the December 31, 2006 PSF update contains their 2005 CCRs (which became available nine months after the end of the fiscal period on January 31, 2006). The 2005 CCRs will be updated to 2006 on January 31, 2007 and be in effect from October 1, 2007 to January 31, 2008. On the latter date the 2006 CCRs will be updated to 2007 and be in effect for the remaining eight months of FFY 2008. Therefore, for hospitals with fiscal periods ending in April the CCRs should be projected over a period of one year for the first four months of FFY 2008 and projected over a period of two years for the remaining eight months of

FFY 2007 ESTIMATED FIXED LOSS AMOUNTS AND UNDERLYING ASSUMPTIONS

METHODOLOGY	Charge Inflation (Proposed Rule, Rate of Change from Jul-Dec 2004 to Jul-Dec 2005) (Per Year)	Cost Inflation (Per Year)	Change in Operating Cost to Charge Ratios (Per Year)	ESTIMATED FFY 2007 FIXED LOSS AMOUNT ($)
Charges Projected From FFY 2006 to FFY 2007; CCRs Unchanged (from PSF December 2006 Update)	7.26%	6.32%	N/A	22,265
Charges Projected From FFY 2006 to FFY 2007; CCRs Projected According to FPE	7.26%	6.32	-0.88%	22,130
Charges Projected From FFY 2006 to FFY 2007; CCRs Projected According to FPE	7.26%	None Used (CCR Rate of Change Estimated Directly	-2.08%	21,965

American Medical Rehabilitation Providers Association

Kathleen C. Yosko, MS, MBA
President and C.E.O.
Marianjoy Rehabilitation Hospital
AMRPA Chairman of the Board

June 29, 2007

Leslie V. Norwalk, Esq
Acting Administrator
Centers for Medicare & Medicaid Services
U.S. Department of Health & Human Services
Attention: CMS-1551-P
P.O. Box 8012
Baltimore, MD 21244-8012

cc: Room 445-G, Hubert H. Humphrey Building
200 Independence Ave. S.W.
Washington, DC 20201

Delivered by Courier

Ref: CMS – 1551-P "Medicare Program; Inpatient Rehabilitation Facility Prospective Payment System for Federal Fiscal Year 2008, Proposed Rule" 72 F.R. 88, May 8, 2007

Dear Ms. Norwalk:

This letter is submitted on behalf of the American Medical Rehabilitation Providers Association (AMRPA). AMRPA is the national voluntary trade association which represents over 550 freestanding rehabilitation hospitals, rehabilitation units of general hospitals, and a number of outpatient rehabilitation units and hospitals. Most, if not all, of our members are participating providers in the Medicare program. Inpatient rehabilitation units and hospitals serve over 400,000 Medicare beneficiaries per year. Medicare Part A payments represent, on average, over 60% of their revenues. Hence any change in the Medicare payment system will have dramatic implications for these providers. This cover letter summarizes our comments on the proposed rule which are attached and our recommendations.

I. 75% Rule Policy, p. 26233, AMRPA Supports Retention of the Comorbidity Policy in the 75% Rule

AMRPA appreciates CMS recognizing the field's concerns over the potential phase out of its policy with respect to comorbidities under the 75% Rule exclusion criterion. As stated in last year's comment letter we support the retention of this policy and

recommend that it be made permanent for determining compliance with the compliance threshold percentage.

- Moving to 75% is actually a greater increase than 10% and will result in a large number of people being denied access.
- Patients admitted under the comorbidity policy are especially medically and functionally complex.
- A diagnosis based criteiron, such as the 75 Percent Rule, is insensitive to the special needs of certain patients.
- The current comorbidity policy should be retained until research and evidence supports further changes.

Recommendations:

1. AMRPA recommends that CMS retain the current comorbidity policy under the 75% Rule exclusion criterion and make it permanent.

2. AMRPA also recommends, based on the research it is sponsoring, prior RAND research, and in response to CMS's request for comment, that CMS add the following comorbidities to the current list of ICD-9-CM codes:
   - Obesity
   - Anemia
   - Depression
   - Thrombophlebitis
   - Chronic Skin Ulcers
   - Osteomyelitis
   - Hypertension

   Furthermore, we recommend that, as an alternative, any functionally compromised patient who needs rehabilitation services and has a cluster of common conditions, specifically a cardiac complication, pulmonary complication, diabetes, obesity and/or metabolic syndrome, be considered to fall within the comorbidity policy.

3. AMRPA recommends that the presumptive methodology policy for qualification under the comorbidity policy, as outlined in Appendix A, become the comorbidity policy and that the regulation be amended to read:
   "A patient with a comorbidity, as defined at § 412.602, may be included in the inpatient population that counts towards the required applicable percentage if—
   A. The patient is admitted for inpatient rehabilitation for a condition that is not one of the conditions specified in paragraph (b)(2)(iii) of this section; and
   B. The item(s) in the IRF PAI requesting data on comorbid conditions falls into ICD-9-CM Codes set forth by CMS.

II. Revision to the Classification Criteria Percentage for Inpatient Rehabilitation Hospitals and Units, p. 26234

Recommendations:

AMRPA urges CMS to use the most recent data available in determining the CMG weights. In its comment letter, MedPAC made a similar recommendation.

AMRPA believes the FY 2006 CMGs reduced the weights overall by 2.2% when a case mix index approach is used as opposed to the weight per discharge and that this issue be re-visited using more current data.

III. Proposed FY 2008 IRF PPS Federal Prospective Payment System, p. 26242

A. Labor Related Share and Market Basket, p. 26242

Recommendations:

1. Market Basket

AMRPA requests that IRF PPS market basket adjustments be calculated using more current market basket data. For FY 2008, the inflation factors are based upon data that are five years old (FY 2002). These factors severely underestimate the inflation that rehabilitation hospitals and units have seen in their labor costs, especially with regard to therapists and registered nurses. If the Bureau of Labor Statistics does not have the capability to collect the necessary data more frequently than every five years, then some other indicators reflecting cost factors should be developed. One potential source for such data can be Medicare cost reports submitted by hospitals and units in the rehabilitation, psychiatric and long term hospital and rehab and psychiatric units.

In addition, AMRPA requests that CMS provide a full market basket adjustment every year to the IRF PPS rates for rehabilitation hospitals and units. That is especially needed, as patient volumes shrink due to the Medicare 75 percent rule, which in turn increases average costs per patient.

2. Labor Share

AMRPA remains concerned that the methodology for computing the labor share does not adequately reflect the difficulty rehabilitation hospitals and units have in recruiting skilled rehabilitation nurses and qualified therapists and assistants and, as noted above, regarding the methodology and data used in developing the wage index. As CMS has continually recognized over the years, and which we support, labor costs are an extremely high percentage of total costs for IRFs, well exceeding the labor costs for acute care hospitals. Other than that AMRPA has no comment.

B. Area Wage Adjustment, p. 26243

Recommendations:

1. AMRPA remains concerned with the overall approach to devising the wage index for inpatient rehabilitation hospitals and units. We are particularly concerned that different methodologies and alternatives, and therefore indices, are used for acute care hospitals, units of acute hospitals and freestanding rehabilitation hospitals in the same geographic, and therefore labor, market. They all compete for the same labor pool and specifically compete for the high wage skilled therapists and rehabilitation nurses. We encourage CMS and MedPAC to address this issue as they work on developing new alternatives to the wage index.

2. Until a new wage index methodology is proposed:
   a. AMRPA also notes that acute hospitals under the IPPS have two other adjustments to their wage index available to them. First, they can avail themselves of the rural wage index in the state if the hospital's wage index will be lower than the rural wage index, also known as the floor to the wage index.

This change was enacted in Section 4410 of the Balanced Budget Act of 1997 (P.L. 105-33). Second, IPPS hospitals can apply, pursuant to Section 6003(h) of the Omnibus Budget Reconciliation Act of 1989 (P.L. 101-239), to change their designations from rural to urban, rural to rural or urban to urban if they meet certain criteria and make an application to the Medicare Geographic Classification Review Board, a process known as reclassification.

AMRPA continues to believe these alternatives should be available to IRFs as well. As noted, IRFs compete for personnel, and frequently personnel such as nurses and therapists work in the same area as acute hospitals. AMRPA recommends that CMS meet with the IRF field to discuss such changes, while acknowledging that such policy changes may require legislative action.

b. AMRPA recommends that CMS conduct further analysis of the wage index methodology to ensure that fluctuations in the annual wage index for hospitals are minimized and all future updates match the cost of IRF labor in these markets.

3. AMRPA supports continuation of the hold-harmless policy.

C. Standard Payment Conversion Factor and Proposed FY 2008 Rates, p. 26244
Recommendation:
AMRPA has no comments on the conversion factor and FY 2008 rates, other than to continue to urge CMS to use the most recent data available.

IV. High Cost Outliers Under The IRF PPS, p. 26249
Recommendations:

A. Change in the Outlier Threshold
AMRPA has always strongly supported the high cost outlier payment policy. We support maintaining it at 3% of total payments, which in this instance requires an increase in the proposed amount of the outlier threshold. When it was amended in FY 2006 and FY 2007, we expressed our concern that it may have been set too low to maintain the 3% policy and thereby decreased the standard payment conversion factor.

B. Update to the Cost-to-Charge Ratio Ceilings
AMRPA has no comment.

C. Adjustment to IRF Outlier Payments
AMRPA has no comment.

V. Clarification of the Regulation Text for Specific Payment Provisions for Patients that Are Transferred p. 26250
Recommendation:
AMRPA supports this clarification.

VI. Anticipated Effects, p. 26252
In this discussion CMS models the effect of the payment changes by type and location of facility and in total. The projected changes are set forth in Table 6. CMS models the impact based on 1,234 IRH/Us and a total estimated case load in FY 2008 of 447,163. In

the rate adjustment file CMS released, it shows 427,419 discharges based on 1,234 facilities which was the volume of cases in FY 2005 used to construct the proposed rule. Anticipated FY 2008 payments are $6.623B for an average payment per case $14,811.06. However, we find the FY 2008 figure unusual not only for the reasons stated below, but also because CMS' June 8 report shows an estimated 2006 level of discharges of 412,000. In FY 2008, the 75% Rule compliance threshold percentage will be at 65% and 75%, not the 60% as in 2006. Hence, we would expect CMS to anticipate a decreased volume in 2008 from 2006. By comparing patient volumes in 2004 to the patient volumes in the combined eRehabData® and UDSmr databases, we modeled the current patient volumes for FY 2008 at 360,000 cases. We continue to be concerned about the effect of the 75% Rule for the following reasons:

A. CMS is Aware the 75 Percent Rule is Based on Outdated Data.

B. The Number and Type of Cases Served by Inpatient Rehabilitation Hospitals and Units Has Decreased Well Beyond CMS' Initial Estimates Due to the 75 Percent Rule, FI and RAC Actions

- The 75% Rule, FI, and RAC activities are resulting in a lack of access for Medicare beneficiaries to IRH/Us in that the total volume of patients treated in IRH/Us has declined dramatically.
- Specific types of cases are not being admitted at the same rates.
- The CMS policies are having an unintended effect on several cases falling in the original nine conditions of the 75% Rule.
- CMS has failed to recognize the impact of the 75% Rule on new categories of surviving patients needing rehabilitation who were not envisioned when the rule was adopted.

C. CMS Policies Are Adversely Affecting the Capacity and Infrastructure of IRH/Us

D. Medicare's Policies Are Causing an Increase in Cost in the IRH/Us and the Payment System is Not Reflecting These Changes and Changes in Case Mix

- The policies have had a financial impact which has implications for the IRF PPS.
- CMS is overestimating the estimated FY 2008 payments and underestimating the drop in Medicare payment to IRH/Us.

Summary

The continued drop in patient volume, impact on unintended populations, failure to recognize growing population clearly in need of IRH/U services, the increase in costs that cannot be otherwise covered by payments, the overall drop in payments, and failure to use current data to realign the IRF PPS to reflect the increase in acuity in case mix due to its policies cannot be sustained by the IRH/U field for an indefinite period. CMS has vastly underestimated the impact of this rule and FI and RAC reviews at every turn—by several orders of magnitude.

E. CMS Seeks to Have IRH/U Patients Treated in Lower Cost Settings without the Benefit of Evidence Based Research to Compare the Clinical Outcomes

- Research to date shows differences in clinical outcomes between sites of care; IRH/Us have consistently stronger clinical outcomes.

- CMS may not be saving Medicare funds by forcing IRH/U patients to go to alternate sites of care such as SNFs.

Summary

CMS has proceeded with the implementation of the 75% Rule and its other policies without recent clinically based evidence available about the differences in care among the potential sites of care to which IRH/U patients are sent due to the rule. By CMS' own admission it expects most of these patients to go to SNFs. However the studies to date, plus critical research conducted by MedPAC raise serious doubts about the clinical care and outcomes these patients are receiving.

Furthermore, if these alternative settings are to be honestly equivalent then it is reasonable to expect that the same or equivalent requirements for processes of care and safety are required of those in other settings and that there are clear measures of quality outcomes available and which are readily understood. MedPAC has repeatedly recommended that CMS amend the SNF PPS to collect admission and discharge data. The intensity of the therapy services should also be monitored qualitatively and quantitatively. The intake status and medical and functional outcomes should be measured to be able to demonstrate equivalence at the level of patient impact. Safety concerns should be addressed. IRH/Us have many resources routinely expended to assure error avoidance, surveillance for high risk conditions, such as deep vein thromboses (DVT), etc. Other allegedly equivalent settings providing rehabilitation services should be required to monitor and report similar or identical measures as those required of IRH/Us.

AMRPA recommends that the research that is currently being conducted be completed and that CMS and the field then engage in an informed debate about the appropriate sites of care for these patients as well as discuss alternative definitions of IRH/Us and similar standards of care for SNFs. Additionally, there are several questions as to whether or not CMS is truly saving money given the difference in the length of stay and higher readmission rates.

VII. Summary and Recommendations

The IRF PPS has been one of CMS' success stories in the implementation of a prospective payment system. Once CMS contracted with the RAND corporation and entered into a collaborative process with the field, it was developed and implemented very smoothly. However since that time, CMS has been aggressive in FY 2006 and FY 2007 in making coding adjustments based on outdated data that does not reflect the impact of its current policies with respect to the 75% Rule and with respect to medical necessity denials. The net result of these approaches is a heavy handed approach aimed at reducing if not eliminating the entire IRH/U field to the detriment of the over 400,00 Medicare beneficiaries served per year and the 200,000 non-Medicare beneficiaries, including wounded soldiers returning from the Iraq war.

CMS states that certain IRH/U patients can be served in allegedly less costly, appropriate sites of care. We believe these statements reflect simply a cost driven desire to seek savings of Medicare dollars, which is a worthy and supportive goal. Whether any savings occur is questionable. However, the cost of these allegedly saved dollars is the welfare, ability, and lives of over 100,000 plus patients to date, with more to follow.

Recommendations:
AMRPA recommends that:

1. CMS update the IRF PPS with additional refinements, using more current data since the CMS policies regarding the 75% Rule, FI reviews, and RAC program were implemented, e.g. 2005, 2006, 2007 data.
2. CMS work with the field to create and discuss an analytical framework to examine real changes in the case mix index and coding improvements and use more recent data in calculating the CMG weights and length of stay. MedPAC made a similar recommendation.
3. CMS support freezing the 75% Rule at a 60% compliance threshold percentage.
4. CMS retain the comorbidity policy and amend it as recommended above.
5. CMS amend the comorbidity policy regulation to make the presumptive methodology the standard for compliance.
6. CMS meet with representatives of the inpatient rehabilitation facility community and other experts in rehabilitation and delivery of health services to discuss revisions of the exclusion criteria for an IRH/U and focus on the statutory intent of the exclusion criteria: to distinguish IRFs from general acute care hospitals for purposes of payment under the IRF PPS. In doing so, CMS should move away from diagnostic-based criteria. In the interim, it should meet with a panel of experts to define additional diagnoses that would benefit from IRH/U services.
7. CMS develop distinct definitions for other post acute care providers such as skilled nursing facilities offering rehabilitation services. We are aware that such an effort is taking place with the LTCHs.

We look forward to working with the Department of Health and Human Services and CMS in moving forward to refine and improve the IRF-PPS and in other related research efforts. If you have any questions about these recommendations please contact me or Carolyn Zollar (202-223-1920).

Sincerely,

Kathleen C. Yosko
Chairman
AMRPA Board of Directors

Mark J. Tarr
Chairman
AMRPA IRF PPS Task Force

American Medical Rehabilitation Providers Association

American Medical Rehabilitation Providers Association's Comments and Recommendations on the Proposed FY 2008 Rule Regarding the Inpatient Rehabilitation Hospitals and Units Prospective Payment System (IRF PPS), CMS-1551-P; 72 F.R. 26229 et Seq, May 8, 2007

This comment letter is submitted on behalf of the American Medical Rehabilitation Providers Association (AMRPA). AMRPA is the leading national trade association which represents over 550 freestanding rehabilitation hospitals, rehabilitation units of general hospitals, and a number of outpatient rehabilitation service providers. Most, if not all, of our members are providers participating in the Medicare program. These inpatient rehabilitation hospitals and units (IRH/Us) serve over 400,000 Medicare beneficiaries per year. Our member organizations represent over half of the 38,000 national inpatient rehabilitation hospital and unit beds. Medicare Part A payments represent, on average, over 60% of the revenues for these units and hospitals. Therefore, any change in the Medicare payment system has dramatic implications for these health care providers. We have reviewed the proposed rule in-depth and our comments follow.

I. 75% Rule Policy, p. 26233

A. AMRPA Supports Retention of the Comorbidity Policy in the 75% Rule

AMRPA appreciates CMS recognizing the field's concerns over the potential phase out of its policy with respect to comorbidities under the 75% Rule exclusion criterion. As stated in last year's comment letter we support the retention of this policy and recommend that it be made permanent for determining compliance with the compliance threshold percentage.

The comorbidity definition states:

"A patient with a comorbidity, as defined at § 412.602, may be included in the inpatient population that counts towards the required applicable percentage if—

A. The patient is admitted for inpatient rehabilitation for a condition that is not one of the conditions specified in paragraph (b)(2)(iii) of this section;
B. The patient has a comorbidity that falls in one of the conditions specified in paragraph (b)(2)(iii) of this section; and
C. The comorbidity has caused significant decline in functional ability in the individual such that, even in the absence of the admitting condition, the individual would require the intensive rehabilitation treatment that is unique to inpatient rehabilitation hospitals and units paid under subpart P of this part and that cannot be appropriately performed in another care setting covered under this title."

In the transmittals implementing the rule, CMS has developed two methods for determining compliance. One is presumptive and the other is medical review. The presumptive methodology utilizes the ICD-9-CM codes, etiologic diagnoses and impairment group codes from the IRF PAI database as listed in Appendix A of the implementing transmittals. The specific IRF PAI items are item number 21, impairment group code; item 22, etiologic diagnosis; and item number 24, a-j comorbid conditions that match the codes listed in the Appendix under "ICD-9-CM Codes." Medical review requires review of the medical records.

1. *Moving to 75% is actually a greater increase than 10% and will result in a large number of people being denied access.*

   For cost reporting periods beginning on or after July 1, 2008 the compliance threshold would presumably increase only 10% from 65% to 75%. This increase to 75% will actually be greater than 10%, assuming that the facility has been admitting patients that qualify under the definition of a comorbidity. Analyses (conducted both by CMS and the industry) of the number of cases admitted under the rule show that 7% of patients were admitted under the presumptive compliance methodology in 2005. Hence the overall change in the threshold would be, in reality, for many facilities 17% thereby becoming an 82% rule, not a 75% Rule. For 2008, CMS is estimating that 447,163 patients are expected to be admitted. If 7% of these cases are no longer covered under the policy due to elimination of the comorbidity policy, it would exacerbate access problems for them. Their status will go from compliant to non-compliant. As a result, fewer will be allowed admission under the 25% allowed for non-compliant patients. Hence, deleting the comorbidity policy would result in further drops in the volume of cases served in IRH/Us and therefore further deny access to patients in need.

2. *Patients admitted under the comorbidity policy are especially medically and functionally complex.*

   The comorbidity factor virtually defines the most medically complex and unique clinical circumstances that are not likely to be accounted for in the 13 existing diagnostic categories. These patients are highly challenged individuals in some of the greatest need for hospital level care for both their medical status and their functional limitations. Access to rehabilitation hospitals for these patients is essential. Simply shifting the percentages will not change the clinical characteristics of the patients who need to be admitted to a IRH/U. These are patients who have a comorbidity that falls into one of the 13 conditions and who have had a significant decline in their functional ability. They are usually severely compromised patients who would not appropriately be treated in other settings. A number of patients clearly would be adversely affected.

   For example, one of our facilities admitted the following patients:

   1. Patient A was admitted in Rehab for Debilitation Secondary to COPD 496/799.3 with a comorbidity of Steroid Myopathy 359.4/E932.0.

2. Patient B was admitted into rehab for Debilitation Secondary to PVD 443.9/799.3 with a comorbidity of Polyneuropathy secondary to PVD 357.4/443.9.
3. Patient C was admitted into rehab for Femur Fracture with a comorbidity of Parkinson's disease 332.0.

In another facility, a patient with a history of stroke resulting in right-sided hemiparesis and spasticity had been functioning in the community with minimal assistance by his spouse for lower extremity (LE) dressing and bathing and ambulated independently using a quad cane. The patient also had osteoarthritis and diabetes which is difficult to control despite close medical management. The patient recently underwent a left hip joint replacement due to the osteoarthritis. Following the joint replacement, the patient was unable to ambulate due to increased weakness and spasticity on the right side related to bed rest and pain and weakness on the left side due to bed rest and the effects of the surgery. The patient was now dependent in LE dressing, bathing, transfers, and ambulation. He was experiencing increased spasticity that, along with the weakness, was significantly limiting his function. This patient required intensive rehabilitation and medical management to return to his pre-joint replacement functional levels. In order to maximize his function, this patient needed daily intensive physical and occupational therapy, injections of neurotoxins to manage his spasticity, and the introduction and monitoring of oral anti-spasticity medications. This patient would not have been admitted if the comorbidity factor were not in effect. It seems to violate a basic principle of fairness for an admission decision to be driven not by the clinical circumstances of an individual patient, but by the mix of diagnoses of other patients who were previously admitted.

In a different hospital, a 45 year-old male was admitted to the IRH/U in 2006 following a total hip replacement. The hip replacement was necessary due to an injury from a motor vehicle accident in 2004. At that time he had also suffered a severe traumatic brain injury in the accident and upon admission he also had a residual right hemiparesis. Prior to admission, he had been living in a nursing home for over two years.

He was admitted to the hospital in a highly dependent status, requiring minimum assistance with feeding, moderate assistance with bathing, and maximal assistance with lower body dressing. He needed maximal assistance to transfer from the bed or toilet to the chair. He was totally dependent in ambulation. Medically, he required monitoring of anticoagulation therapy as well as seizure prophylaxis; he needed pain management intervention due to his surgery as well as neuropathic pain stemming from his previous traumatic injuries. In addition to therapy focused on physical mobility and self-care skills related to his hip replacement, this patient also received therapy for cognitive deficits related to his prior traumatic brain injury.

At discharge, the burden of care was much less. He was functioning at a supervised level of care for all areas of self-care, transfers and ambulation. His private insurer approved his entire length of stay given the vastly improved functional outcomes. He was temporarily discharged back to a nursing home to await the Medicaid waiver that was applied for by the IRH/U staff.

Had he been forced to return to the nursing home permanently following his joint replacement, it is probable he would not have made the functional gains and outcomes he achieved. Due to strong, proactive case management, this patient had a Medicaid waiver instituted and returned to the community. This young patient's primary insurer at the present time is Medicare. Had he been denied access to the IRH/U because of the elimination of the comorbidity factor, it is very probable that this patient would have been institutionalized in a nursing home for the rest of his life, rather than returning to the community, at home, with his wife.

Additional cases which show the high degree of medical and functional complexity are attached in the Appendices. Patients' needs for rehabilitation care reflect an interplay of their levels of medical and functional complexity. A patient with high medical management needs may need intensive inpatient rehabilitation care as may a patient with high functional needs and lower medical requirements. Hence, their comorbidities may be critical in determining their need for inpatient hospital rehabilitation and qualification under the rule.

3. *A diagnosis based criteiron, such as the 75 Percent Rule, is insensitive to the special needs of certain patients.*

The comorbidity policy should be retained because of the inherent limitations of any diagnosis based system. Such a system is insensitive to the special needs of individual patients. CMS has recognized this most recently in the proposed rule on the inpatient prospective payment system (IPPS) in which it proposes to revise the DRGs to include severity, not just diagnosis. To eliminate the comorbidity policy exacerbates access to care in IRH/Us, as noted. The debate over the rule centers on the fact that the rule has moved away from its original purpose of defining an IRH/U as compared to an acute care hospital to embrace issues of medical necessity. The result is that the rule is being used as a crude measure of medical necessity. Until these issues of medical necessity are further researched, debated and resolved, the rule should recognize the clinical relevance of patients who present with complex clinical elements and need care, be it by a primary qualifying condition under the 13 conditions or by a qualifying comorbidity. As MedPAC stated before the Ways and Means Subcommittee on Health and in its comment letter on this proposed rule, the 75% Rule is a blunt instrument. Eliminating the comorbidity factor would further dull that blade beyond all vestiges of reasonableness and compassion.

4. *The current comorbidity policy should be retained until research and evidence supports further changes.*
The use of comorbidities should be retained indefinitely, at a minimum, until current research examining the use of comorbidities, and their severity is concluded. AMRPA is supporting research that will seek to determine the outcomes of different types of patients with non-qualifying primary conditions who are treated in different settings, primarily IRH/Us and SNFs.

In 2006, AMRPA convened a Research Committee which funded eight (8) research proposals on different subjects. These have been shared previously with CMS and summaries are attached. These proposals would examine various conditions and the care given to patients in IRH/U as well as SNF settings, and their outcomes. In addition AMRPA along with other organizations sponsored a research symposium, titled "State of the Science" on February 12-13 which a number of CMS staff attended. Over 30 research projects were presented.

One study, *How Comorbidities Can Be Taken into Account to Determine Rehabilitation Admission to a SNF or IRF*, focuses on the comorbidities of patients in SNFs and IRH/Us who have experienced joint replacements. AMRPA has received some preliminary findings from this study. These preliminary findings may change slightly in coming months with the benefit of new data, additional analyses, and review. These analyses apply only to study patients who had a unilateral knee replacement.

The JOINTS study consists of two parts, as well as the study on comorbidities. JOINTS I is a prospective observational cohort study of 2,467 hip and knee replacement rehabilitation patients from 11 SNFS and 11 IRFs from across the nation. JOINTS I examines patient outcomes at discharge with the benefit of data on facility characteristics and highly detailed data on patient characteristics and processes of care. JOINTS II is a 6-month follow-up study[1] of about 1,200 patients from 15 of the original 22 facilities and examines a wider assortment of outcomes that include functional status, medical complications, post-discharge health care utilization, social participation, and health care expenditures associated with the entire episode of care from admission to 6 months thereafter.

There are three <u>preliminary</u> findings with respect to comorbidities among unilateral knee replacement patients.

- **A very limited number of joint replacement patients have a comorbidity that falls within CMS conditions 1-9 of the rule**

First, as outlined in Table 1 attached, only 6.3% of the 704 unilateral knee replacement patients in IRFs and only 3.3% of the 550 unilateral knee

[1] Six months from admission to a SNF or IRF.

replacement patients in SNFs had a condition on the Comorbidity 1-9 list.[2] In short, the retention of theses comorbidities as qualifying 75% Rule conditions will have a small impact on the Medicare budget and shows perhaps that few such cases are being admitted under the policy.

- **Patients in IRFs bring other health conditions that need to be managed well in order to participate in a vigorous program of therapy and achieve good outcomes**

Second, as outlined in Table 2, IRFs (as do SNFs) serve people with other significant comorbidities that are not included in the 75% Rule. The typical unilateral knee replacement patient in an IRF is in her early 70s and overweight. The typical patient is, in fact, obese and has an average body mass index (BMI) of 33.[3] Older and heavier patients are prone to bring an array of other health conditions that need to be managed. These include diabetes, hypertension, ischemic heart disease, hyperlipidemia and other cardiovascular diseases, or a combination of these and other health conditions that often go under the umbrella of "metabolic syndrome." More than a quarter of joint replacement patients in IRFs come with either acute post-surgical or chronic anemia. Another one-fifth bring mental health issues such as depression or anxiety to the IRF setting. Most of these conditions are reasonably well under control but joint replacement surgery and early rehabilitation can stress the patient's overall health in the short term and require timely medical monitoring and resources.

As observed in Table 2, unilateral knee replacement patients with comorbidities, on average, present a more severe medical profile (as measured by the Comprehensive Severity Index (CSI)) and stay slightly longer than those without the condition. Yet, they are able to participate at the same level of therapy, and achieve comparable results as measured by the motor subscale of the Functional Independence Measure (FIM).

As observed in Table 3, unilateral knee replacement patients with comorbidities also do about as well as the least severe patients. In this instance, the researchers defined the least severe group as those who had a maximum severity of 20 or less over the course of their inpatient stay. This reference group consists of about 1/7 of the study group. In other words, Table 3 compares patients with select comorbidities to those in the least severe group.

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[2] The Study Team notes that there are many more IRF patients (56.1%) who have Comorbidities 10-12. Because these comorbidities are often coexistent with the need for a joint replacement and because individuals with these conditions must also meet other stringent requirements (e.g., a failed rehabilitation attempt in a less costly facility), that could not be simulated with study data.

[3] BMI ≥25 = overweight.
BMI ≥30 = obese.
BMI ≥40 = morbidly obese.

While patients with comorbidities come with greater medical severity or acuity and somewhat lower functional status scores, they are able to participate in comparable levels of therapy and achieve comparable gains in functional status as measured by their motor and cognitive FIM scores. They do, however, have somewhat longer lengths of stay that correspond with their greater medical needs.

- **IRFs provide superior outcomes for patients with select combinations of comorbidities upon discharge**

Third, as illustrated in Figure 1 attached, IRFs provide superior short-term outcomes for select unilateral knee replacement patients—in this instance patients with any combination of the following: (1) diabetes, (2) BMI >35 with hypertension, and/or (3) anemia. The researchers report that they selected this cohort merely to differentiate outcomes across settings of care with sufficiently high numbers of patients. They are also examining potential subgroups in SNFs regarding outcomes.

In teasing out setting effects on outcomes for patients with comorbidities, the investigators observed that facility volume, i.e., annual volume of joint replacement rehabilitation patients, is associated with outcomes especially among SNFs as noted in Figure 1 and should be taken into account in future analyses. In Figure 1 there is a 4-point difference in motor FIM gain between patients in medium- and larger-size SNFs and those in IRFs, and a 10-point spread between smaller SNFs and IRFs[4]. Whether these differentials and others will remain following discharge is the subject of JOINTS II, the 6-month follow-up study that also examines the expenditures associated with both settings of care and with subsequent health care utilization in the follow-up period.

The research underway should help to identify those patients who are better served in one setting or the other and thus help to target more carefully patient placement in keeping with patient needs and potential. More importantly, however, this research will examine how the care in both settings is associated with outcomes. The study database includes detailed information on 33,000 physical therapy and 28,000 occupational therapy sessions in both SNFs and IRFs, which will help in understanding the combinations of interventions that are most associated with different outcomes of interest.

Recommendations:

1. AMRPA recommends that CMS retain the current comorbidity policy under the 75% Rule exclusion criterion and make it permanent.

2. AMRPA also recommends, based on the research it is sponsoring, prior RAND research, and in response to CMS's request for comment, that CMS add the following comorbidities to the current list of ICD-9-CM codes:

[4] These findings are not risk or case-mix adjusted. According to the study investigators, SNF patients are somewhat older and IRF patients are more functionally and medically impaired at admission.

- Obesity
- Anemia
- Depression
- Thrombophlebitis
- Chronic Skin Ulcers
- Osteomyelitis
- Hypertension

Furthermore, we recommend that, as an alternative, any functionally compromised patient who needs rehabilitation services and has a cluster of common conditions, specifically a cardiac complication, pulmonary complication, diabetes, obesity and/or metabolic syndrome, be considered to fall within the comorbidity policy.

3. AMRPA recommends that the presumptive methodology policy for qualification under the comorbidity policy, as outlined in Appendix A, become the comorbidity policy and that the regulation be amended to read:
   "A patient with a comorbidity, as defined at § 412.602, may be included in the inpatient population that counts towards the required applicable percentage if—
   A. The patient is admitted for inpatient rehabilitation for a condition that is not one of the conditions specified in paragraph (b)(2)(iii) of this section; and
   B. The item(s) in the IRF PAI requesting data on comorbid conditions falls into ICD-9-CM Codes set forth by CMS.

II. Revision to the Classification Criteria Percentage for Inpatient Rehabilitation Hospitals and Units, p. 26234

CMS states that it is not updating the length of stay numbers or making any changes to the CMGs and therefore their weights for FY 2008.

Recommendations:

AMRPA urges CMS to use the most recent data available in determining the CMG weights. In its comment letter, MedPAC made a similar recommendation.

AMRPA believes the FY 2006 CMGs reduced the weights overall by 2.2% when a case mix index approach is used as opposed to the weight per discharge and that this issue be re-visited using more current data.

III. Proposed FY 2008 IRF PPS Federal Prospective Payment System, p. 26242

A. Labor Related Share and Market Basket, p. 26242

CMS proposed a labor share of 75.746 and continues to use the rehabilitation, psychiatric and long term care hospital market basket. The estimated increase in the market basket is 3.3%.

Recommendations:

1. Market Basket

AMRPA requests that IRF PPS market basket adjustments be calculated using more current market basket data. For FY 2008, the inflation factors are based upon data that are five years old (FY 2002). These factors severely underestimate the inflation that rehabilitation hospitals and units have seen in their labor costs, especially with regard to therapists and registered nurses. If the Bureau of Labor Statistics does not

have the capability to collect the necessary data more frequently than every five years, then some other indicators reflecting cost factors should be developed. One potential source for such data can be Medicare cost reports submitted by hospitals and units in the rehabilitation, psychiatric and long term hospital and rehab and psychiatric units.

In addition, AMRPA requests that CMS provide a full market basket adjustment every year to the IRF PPS rates for rehabilitation hospitals and units. That is especially needed, as patient volumes shrink due to the Medicare 75 percent rule, which in turn increases average costs per patient.

2. *Labor Share*
AMRPA remains concerned that the methodology for computing the labor share does not adequately reflect the difficulty rehabilitation hospitals and units have in recruiting skilled rehabilitation nurses and qualified therapists and assistants and, as noted above, regarding the methodology and data used in developing the wage index. As CMS has continually recognized over the years, and which we support, labor costs are an extremely high percentage of total costs for IRFs, well exceeding the labor costs for acute care hospitals. Other than that AMRPA has no comment.

B. Area Wage Adjustment, p. 26243

All IRF hospitals and units will have their wage index based entirely on Core Based Statistical Areas (CBSAs) labor market area designations in FY 2008. The phase-in to CBSAs and the 3-year hold harmless policy for hospitals and units that were changed from a rural to an urban area were completed in FY 2007. CMS continues to maintain the policies and methodologies in the FY 2007 IRF PPS final rule relating to the labor market area definitions and the wage index methodology for areas with wage data. This proposed rule continues to use the pre-reclassification and pre-floor hospital wage index based on 2003 cost report data. The proposed FY 2008 wage index values have been published as tables 1 and 2 of the notice of proposed rule-making.

AMRPA's analysis of the wage index values in certain geographical areas has shown a significant fluctuation with some areas experiencing increases of 5% or more and some experiencing declines in excess of 7%. The volatility in these amounts has the potential to significantly impact IRF payments both upward and downward across individual hospitals. Further, these wage index values may be used to standardize certain amounts in the CMS regression analysis that has the potential to impact other payment adjustment decisions. While noting the significant fluctuations of certain individual hospital wage index values, AMRPA does not see a similar correlation to the labor costs to operate in these market areas. For instance, IRF hospitals that experienced a significant decline in their wage index still experienced upward market pressures on salaries related to the nursing and therapist shortage.

CMS is not proposing any changes to the CBSA methodology for calculating the wage index or the hold harmless policy. It also amends some of the CBSA titles.

Recommendations:

1. AMRPA remains concerned with the overall approach to devising the wage index for inpatient rehabilitation hospitals and units. We are particularly concerned that different methodologies and alternatives, and therefore indices, are used for acute care hospitals, units of acute hospitals and freestanding rehabilitation hospitals in the same geographic, and therefore labor, market. They all compete for the same labor pool and specifically compete for the high wage skilled therapists and rehabilitation nurses. We encourage CMS and MedPAC to address this issue as they work on developing new alternatives to the wage index.

2. Until a new wage index methodology is proposed:
   a. AMRPA also notes that acute hospitals under the IPPS have two other adjustments to their wage index available to them. First, they can avail themselves of the rural wage index in the state if the hospital's wage index will be lower than the rural wage index, also known as the floor to the wage index. This change was enacted in Section 4410 of the Balanced Budget Act of 1997 (P.L. 105-33). Second, IPPS hospitals can apply, pursuant to Section 6003(h) of the Omnibus Budget Reconciliation Act of 1989 (P.L. 101-239), to change their designations from rural to urban, rural to rural or urban to urban if they meet certain criteria and make an application to the Medicare Geographic Classification Review Board, a process known as reclassification.

      AMRPA continues to believe these alternatives should be available to IRFs as well. As noted, IRFs compete for personnel, and frequently personnel such as nurses and therapists work in the same area as acute hospitals. AMRPA recommends that CMS meet with the IRF field to discuss such changes, while acknowledging that such policy changes may require legislative action.

   b. AMRPA recommends that CMS conduct further analysis of the wage index methodology to ensure that fluctuations in the annual wage index for hospitals are minimized and all future updates match the cost of IRF labor in these markets.

3. AMRPA supports continuation of the hold-harmless policy.

C. Standard Payment Conversion Factor and Proposed FY 2008 Rates, p. 26244

CMS proposed to update the standard payment conversion factor by the market basket estimate of 3.3%, plus a budget neutrality adjustment of 1.0040, which results in a proposed FY 2008 standard payment of $13,463. Table 4 sets forth the proposed FY 2008 payment rates for the Case Mix Groups (CMGs). On Table 5 CMS gives an example of how payment is calculated for different facilities with different facility adjustment factors.

Recommendation:

AMRPA has no comments on the conversion factor and FY 2008 rates, other than to continue to urge CMS to use the most recent data available.

IV. High Cost Outliers Under The IRF PPS, p. 26249

Given the above proposed change to the standard payment conversion factor amount, CMS proposes adjusting the high cost outlier threshold so that outlier payments continue to equal approximately 3% of total estimated payments. The FY 2007 threshold is $5,534. CMS is proposing to increase it to $7,522.

The proposed national cost to charge ratios (CCRs) are 0.589 for rural and 0.475 for urban. These are used in specific circumstances. CMS also clarifies that it uses an overall combined (operating and capital cost), CCR.

Recommendations:

A. Change in the Outlier Threshold

AMRPA has always strongly supported the high cost outlier payment policy. We support maintaining it at 3% of total payments, which in this instance requires an increase in the proposed amount of the outlier threshold. When it was amended in FY 2006 and FY 2007, we expressed our concern that it may have been set too low to maintain the 3% policy and thereby decreased the standard payment conversion factor.

B. Update to the Cost-to-Charge Ratio Ceilings

AMRPA has no comment.

C. Adjustment to IRF Outlier Payments

AMRPA has no comment.

V. Clarification of the Regulation Text for Specific Payment Provisions for Patients that Are Transferred p. 26250

CMS advises that it is clarifying its current policy that short stay transfer payment cases are also eligible to receive outlier payer payments.

Recommendation:

AMRPA supports this clarification.

VI. Anticipated Effects, p. 26252

In this discussion CMS models the effect of the payment changes by type and location of facility and in total. The projected changes are set forth in Table 6. CMS models the impact based on 1,234 IRH/Us and a total estimated case load in FY 2008 of 447,163. In the rate adjustment file CMS released, it shows 427,419 discharges based on 1,234 facilities which was the volume of cases in FY 2005 used to construct the proposed rule. Anticipated FY 2008 payments are $6.623B for an average payment per case $14,811.06. However, we find the FY 2008 figure unusual not only for the reasons stated below, but also because CMS' June 8 report shows an estimated 2006 level of discharges of 412,000. In FY 2008, the 75% Rule compliance threshold percentage will be at 65% and 75%, not the 60% as in 2006. Hence, we would expect CMS to anticipate a decreased volume in 2008 from 2006. By comparing patient volumes in 2004 to the patient volumes in the combined eRehabData® and UDSmr databases, we modeled the current patient volumes for FY 2008 at 360,000 cases.

AMRPA does not believe CMS's figures in the proposed rule are reflective of the current IRH/U environment regarding volume, infrastructure, cost, or changes in case mix which affect the dynamics of the IRF PPS.

A. CMS is Aware the 75 Percent Rule is Based on Outdated Data.

AMRPA and CMS are aware that the rule is based on data from the late 1970s. CMS outlined part of the history of its development in the preamble to the final rule of May 7, 2004. The Social Security Act Amendments of 1983 (P.L. 98-21), which created the inpatient prospective payment system (IPPS), excluded long-term care, children's, cancer, rehabilitation, and psychiatric hospitals and rehabilitation and psychiatric units. While the law defined psychiatric, long-term care and children's hospitals, no statutory definition of a rehabilitation hospital or unit existed. Recognizing this, Congress authorized the Secretary of Health and Human Services (HHS) to define rehabilitation hospitals and units for purposes of IPPS exclusion.

In developing the interim final rule published on September 1, 1983, HCFA, now CMS, relied heavily on an earlier industry-developed document entitled *Sample Screening Criteria for Review of Admissions to Comprehensive Medical Rehabilitation Hospitals/Units*, which it mentioned in the May 7, 2004 preamble to the final rule. (See HCFA Technical Assistance Document No 24 (May 1981)). Although the Technical Assistance Document relied on by HCFA was dated just two years before the interim final rule's publication, it was actually based on criteria developed using data from as early as 1971, when the Academy of Physical Medicine and Rehabilitation (the Academy) first established an Ad hoc Committee on Peer Review.

In 1975, the Academy, under subcontract to the American Medical Association (AMA), developed for HCFA sample screening criteria for inpatient rehabilitation admissions based on the work of the Ad hoc Committee. This project was intended to provide a basis for reviewing the medical necessity of admission to and continued stay in rehabilitation hospitals and units and for assessing the quality of care furnished in them. The eight medical conditions for which sample screening criteria were developed included approximately 75% of the admissions to comprehensive medical rehabilitation hospitals and units.

The January 3, 1984 final rule required each rehabilitation hospital or unit seeking exemption to "show that during its most recent 12 month cost reporting period it served an inpatient population of whom at least 75% required intensive rehabilitation services for the treatment of one or more of the following conditions" and added neurological disorders and burns to the original list in the aforementioned screening criteria:

- Stroke
- Spinal Cord Injury
- Congenital Deformity
- Amputation
- Major Multiple Trauma
- Fracture of Femur (hip fracture)
- Brain Injury
- Burns
- Polyarthritis, including rheumatoid arthritis
- Neurological disorders, including multiple sclerosis, motor neuron diseases, polyneuropathy,

muscular dystrophy, and Parkinson's disease

In developing the final rule, HCFA considered, but did not include, pain or pulmonary/cardiac disorders. See 69 FR 240.

In the mid-1980s, questions arose regarding the treatment of hip fracture and hip procedure cases for IRH/U admission and 75% Rule purposes. The national staff of the Peer Review Organizations (PROs, successors to the PSROs), took the position that, if a patient had arthritis and underwent hip replacement, the patient should be considered a polyarthritis patient for purposes of the 75% Rule. The reasoning was that, if the medical condition of arthritis resulted in a surgical intervention, the underlying medical condition would be the determining factor for purposes of the 75% Rule. Most PROs used the 1981 Technical Assistance Document cited above in making determinations regarding Medicare admissions to IPPS-excluded rehabilitation hospitals and units.

On May 16, 2003, CMS published an NPRM, which did not propose any changes to the 75% Rule, and invited comments on (1) "any conditions that necessitate the intensive, multidisciplinary care that IRH/Us are required to provide" and (b) "any potential negative effect on patient access to rehabilitative care" resulting from CMS' proposal to reinstate enforcement of the existing 75% Rule. 68 FR 26794-95. On September 9, 2003 CMS published a second proposed rule and proposed to change the type and number of conditions and the threshold percentage. On May 7, 2004 it published a final rule that reflected little change from the proposed rule. It changed the number of conditions from 10 to 13 and dropped compliance threshold to 50%, then phased it back up to 75% over a four (4) year period. It also allowed patients that met the definition of a comorbidity to be included in the compliance threshold until the threshold increased to 75%. CMS deleted polyarthritis, added three very narrow clinical conditions, and a limited condition pertaining to joint replacement cases.

To this day, CMS has not truly updated the rule since 1971, over 30 years, to reflect changes in medical science and technology, and has instead sought to narrow extensively the number and types of cases that qualify for compliance.

B. The Number and Type of Cases Served by Inpatient Rehabilitation Hospitals and Units Has Decreased Well Beyond CMS' Initial Estimates Due to the 75 Percent Rule, FI and RAC Actions

In addition to the 75% Rule being implemented, Fiscal Intermediaries (FIs) are conducting medical necessity reviews under their local coverage determinations (LCDs), and through pre and post payment reviews or probe audits. The reviews are focused on orthopedic cases, primarily joint replacement cases, based on a length of stay of less than 8 days, and in some instances on stroke cases.

There appears to be no rhyme or reason as to the focus on these specific types of cases, although the FIs and RACs may claim a facility's numbers exceed a state or regional average which is not given. Facilities are appealing a high percentage of these cases. Pursuing an appeal places a heavy and costly administrative burden on the facilities.

Some facilities estimate that the cost of pursing a case to the Administrative Law Judge level ranges from $5,000 to $9,000. Not only does the administrative appeal process place an additional burden on the facilities, it also requires the FI to incur additional staff time and costs in conducting the redeterminations under the appeals process. To date, cases that are appealed to the Administrative Law Judge level are being reversed at a high rate.

The Recovery Audit Contractors (RACs) are acting in an irresponsible manner in seeking overpayments by IRH/Us, particularly in California. CMS engaged RACs to seek and recoup overpayments and underpayments under the Medicare program pursuant to Section 306 of the Medicare Modernization Act. CMS contracted with such entities in the states of California, Florida and New York which represent a high volume of Medicare claims. The RAC in California is PRG Shultz. The California RAC has focused almost exclusively on reviewing IRH/U claims under its contract, and again almost exclusively on joint replacement cases. According to CMS' first year report as of November 2006, the California RAC had recouped $29.2 million and had $75.8 million pending. For each overpayment it reports to the California fiscal intermediary, National Government Services, PRG Shultz receives an incentive payment which is, we understand, 25% of the claim. Clearly the incentive is to find overpayments without adequate medical review, at a minimum.

1. *The 75% Rule, FI, and RAC Activities are Resulting in a Lack of Access for Medicare Beneficiaries to IRH/Us in that the Total Volume of Patients Treated in IRH/Us Has Declined Dramatically.*

   In the final rule of May 7, 2004, pg. 25772 CMS stated in its impact analysis that it anticipated the 0.1% of the 459,682 patients expected to be treated during the first full year of implementation of the rule in IRH/Us would not be treated. This number has been shown through multiple analyses (including CMS's own analyses) to be grossly understated in terms of the devastating impact the rule and other activities have had on IRH/Us since July 1, 2004. There has been a dramatic drop in total volume, by specific types of cases as well as a number of unintended consequences of the rule.

   The Medicare Payment Advisory Commission (MedPAC) in its 2006 March report examined the payment adequacy of the IRF PPS for the first time. It updated this analysis in its March 2007 report. In both years, MedPAC examined closely the impact of the 75% Rule on the margins and operation of IRH/Us and in the 2007 report acknowledged the FI review actions. It noted in 2006 that the volume of patients began to drop from 2004 to 2005 by 9% due to implementation of the rule. (pg 226, MedPAC, March 2006) In its 2007 report it anticipates that the volume in IRH/Us will drop an additional 20% as facilities come into compliance with the 65% compliance threshold percentage which starts to be implemented on July 1, 2007. It also noted in the 2007 report that in 2005 there were 449, 321 cases treated as opposed to 496,695 treated in 2004, a drop of 47,774 cases which is in keeping with findings by the Moran Company (below).

In addition, the IRH/U field has analyzed the total volume decreases since the inception of the rule and found also that the total impact well exceeds the original estimates. The Moran Company report through the second quarter of 2006 notes that the total Medicare case load declined by 88,053 cases over the first two program years of the rule and in the first year approximately 44,000 people were turned away. The Moran Company has data from the two large private data bases in the field which represent 75% of all Medicare IRH/U discharges. It notes specifically that for program year 2006 that Medicare case load was down 12.4% from the Program Year 2005 and 18.4% from Program Year 2004. (See *Utilization Trends in Inpatient Rehabilitation: Update Through Q II 2006, September 2006, Revised Edition* attached.) AMRPA's database, known as eRehabData® is included in the Moran report data base.

In the first quarter of FY 2007, The Moran Company noted further drops. "In the first quarter of calendar year 2007, Medicare caseload in our sample continued to decline. Medicare discharges in our sample fell to 62,623, the lowest level observed in our 21 quarters of data." See *Utilization Trends in Inpatient Rehabilitation: Update Through QI 2007, May 2007* attached.)

In a separate analysis, AMRPA/eRehabData® noted a decrease in Medicare patients for the first year of 34,624 and of non Medicare patients of 5,970 compared to the year before the implementation of the rule and FI reviews and a decrease of over 85,282 Medicare patients and 9,428 non-Medicare patients in the second year of the rule compared to the year before implementation of the rule and FI reviews. In the third year of the rule, which is almost completed, AMRPA anticipates that even though the threshold has been held at 60% for a second year, the number of people denied care will increase to 118,281 Medicare patients in anticipation of moving to the 65% level as compared to the level of cases in the year prior to the rule being implemented. eRehabData® estimates that once the compliance threshold moves to 65% the number of Medicare patients not served will increase to 138,344 compared to the year before the rule was implemented. This represents a decrease in volume of 29.57% which supports MedPAC's estimates.

CMS's own June 8 report affirms that the number of patients treated in rehabilitation hospitals and units dropped by 19 percent from 2004 to 2006; and in 2006 was equal to the number of patients treated in 2000 (411,000). This major reduction – a 19 percent decrease – runs counter to the overall 9 percent growth of Medicare beneficiaries since 2000.

2. *Specific Types of Cases Are Not Being Admitted at the Same Rates.*
In addition, certain types of cases are being denied care in large volumes. The Moran Company has been tracking the change in the types of cases denied care as well. In its Q1 2007 report "*Utilization Trends in Inpatient Rehabilitation: Update Through Q1:2007*" it notes "the five categories with the largest declines account for nearly 90% of the total decline in caseload in the first quarter of 2007, relative to the first quarter of 2004." These five categories are: replacement of lower extremity joints,

miscellaneous cases (which includes all cancer and transplant cases), cardiac, pulmonary, and other orthopedic cases. Of greater interest however is that since the second quarter of 2006 there has been a decrease in the stroke cases served which AMRPA believes was an unintended consequence. [See pg. 6, Table One of the Q1 2007 report and compare to Table One pg. 7 QII 2006 report] CMS notes in its report that the five categories of cases are associated with "conditions that are not generally considered to require the intensive rehabilitation provided by IRFs and can more appropriately be cared for in other less intensive settings." This statement again reflects CMS's lack of understanding of the statutory reason for the exclusion criteria: to distinguish IRH/Us from acute hospitals. It was not intended to be a medical necessity measure as CMS has interpreted it.

AMRPA also has tracked the changes in the volume of cases by Rehabilitation Impairment Category. We note also that the changes from the first quarter of 2004 to the first quarter of 2007 show that the largest drops are in the categories of osteoarthritis (-79.32%), pulmonary (-57.68%), amputation , other (-58.49%), pain (-50.82%), replacement of lower extremity joint (-49.51%), and rheumatoid, other arthritis (-49.66%). As with the Moran data, there is also a drop, albeit smaller here, in treatment of stroke patients. [Source: Change in Volume by Rehabilitation Impairment Category as a Result of the 75% Rule from eRehabData®/ AMRPA]

3. *The CMS Policies Are Having an Unintended Effect on Several Cases Falling in the Original Nine Conditions of the 75% Rule.*
Because of reports from the field about other effects of the rule, AMRPA analyzed the impact at an even finer level by looking at the Impairment Group Codes (IGCs). IGCs are bundles of diagnoses comprised of ICD-9-CM codes. They are then grouped into the larger Rehabilitation Impairment Categories (RICs) addressed above. When examined at this level, we find, as the prior analyses found, serious drops in the above categories which are the target of the 75% Rule.

However we also saw a number of other changes in access under the nine (9) original conditions. From our analyses we found that a number of types of stroke cases were affected, specifically the category of 01.9, Other Stroke and 01.1, Stroke with Left Body Involvement. While IGC 01.1 showed an increase from the first quarter of 2004 to the first quarter of 2005 (the first program year) it shows a 4.58% decrease from Q1 2004 to Q1 2007. In addition, 02.9, Other Brain Injuries, is excluded from the rule and while various types of paraplegia and quadriplegia are included IGCs, specific diagnoses within them, known as Etiologic Diagnoses, have been excluded by CMS. When we analyzed All Patients, some of the numbers showed that 01.3 Stroke Bilateral Involvement which is included under the rule dropped as did 01.9 Other Stroke, 03.5 Cerebral Palsy, specific types of paraplegia and quadriplegia reflecting the younger population in these cases, as well as burns and spinal cord cases with multiple fractures and amputations, both of which are included in the rule.

4. *CMS Has Failed to Recognize the Impact of the 75% Rule on New Categories of Surviving Patients Needing Rehabilitation Who Were Not Envisioned When the Rule Was Adopted.*

CMS' changes to the 75% Rule and other policies have eliminated most arthritis and single joint replacements from being served in IRH/Us as noted above. However because of their stringency, there is also a drop in the areas where medical science is making great advancements in mortality and longevity, turning serious cardiac, respiratory and especially cancer and transplant diagnoses into conditions to be managed not death sentences.

Even before the IRF PPS was enacted, the field saw an increase in cardiac, pulmonary and cancer patients. Cardiac cases increased from 2.47% of cases in 1994 to 5.71% of cases in 2002; pulmonary from 1.98% is 1994 to 2.71% in 2002 and the miscellaneous category which includes cancers, and other serious pulmonary cases from 5.43% in 1994 to 11.21 % in 2002. By 2006 cardiac had dropped to 4.17%; pulmonary to 1.53%, and miscellaneous to 9.44% of the total cases. ("Analysis of the 75 Percent Rule by Rehabilitation Impairment Category, Medicare Patients Only, 1994 – 2007," AMRPA). These cases are complex, resource intensive, and reflect the underlying shift in successful acute medical treatment and the then subsequent need for intensive hospital rehabilitation services.

CMS is aware that the rule is seriously jeopardizing treatment for these patients. At its own panel convened on its behalf by the National Institutes of Health in February 2005, one of the physicians stated that surgeons he knew who performed advanced cardiac surgery to provide left ventricular assistive devices would not perform it if they knew that their patients would be prohibited from receiving intensive hospital rehabilitation services.

A recent article in the Journal of Surgical Oncology, 2007; 95:370385, *Policy Issues Related to the Rehabilitation of the Surgical Cancer Patient,* notes that the 75% Rule may be a factor in access to IRH/U care and notes that at the same time there is a growing need for rehabilitation for surgical cancer patients. These needs will increase as the population ages, long term cancer survival improves and cancer gains recognition as a chronic condition. "Despite a growing body of evidence linking cancer survivorship with functional limitations and disability, there appears to be little momentum in preparing for increased demand for cancer rehabilitation services." pg. 381 Another article in the Journal of Surgical Oncology, *Rehabilitation of Surgical Cancer Patients at University of Texas M.D. Anderson Center* outlines the benefits of cancer rehabilitation to these patients. Journal of Surgical Oncology 2007; 95:361.69

As facilities move into the fourth year of the rule when the compliance threshold percentage increases to 65% we are already hearing that more patients will be turned away, further reducing access for these patients.

In summary, CMS has grossly underestimated the impact of this rule in terms of the patients who have been denied care in inpatient rehabilitation hospitals and units. Not

only are the patients whom CMS targeted under the rule being turned away, but also (a) patients that have traditionally been treated in these settings since well before 1994 being denied care and (b) new, emerging surviving categories of patient (cardiac, pulmonary, cancer, and transplants) are also being denied care. CMS states they are (or it believes they are) increasingly – and adequately – being served in settings that are both less intensive and less costly.

C. CMS Policies Are Adversely Affecting the Capacity and Infrastructure of IRH/Us

In addition, the rule has had a direct negative impact on the infrastructure of inpatient rehabilitation hospitals and units across the country. AMRPA collects data from CMS every year regarding the number of excluded IRH/Us and the number of beds in these facilities. There is a considerable drop in facilities and beds since 2004. From 2002 to 2004, the number of facilities increased by 4.94%. From 2004 to May 2007, the number of facilities dropped by 11.679% and the number of beds dropped by 10.95%. [Source: Rehabilitation Hospitals and Units and Beds (Percentage Change) Corrected, 2002-2007 attached] We believe it is hard to draw any conclusion other than that these changes reflect the impact of the 75% Rule and directives to CMS' fiscal intermediaries and RACs.

Once this capacity is dismantled, it will take a very long time to reconstruct it, if ever.

D. Medicare's Policies Are Causing an Increase in Cost in the IRH/Us and the Payment System is Not Reflecting These Changes and Changes in Case Mix

1. The Policies Have Had a Financial Impact Which Has Implications for the IRF PPS

There is an even more severe impact on the finances of IRH/Us for multiple reasons. MedPAC analyzed this issue carefully in its payment adequacy analysis, which drew it to conclude that the Medicare margins for IRH/Us will drop to 2.7% in 2007 from 13.0% in 2005. It expects facilities to be able to eliminate all patient care costs for the additional 20% of cases that it expects will be denied at the 65% level, but does not expect facilities to be able to eliminate all overhead costs related to these patients. Hence, the result is a considerable increase in the per unit cost of care.

In addition, MedPAC notes that the patients now being served by IRH/Us will also increase the costs per case in 2007 and 2008 because there is a much higher case mix index. It cites a 6% increase in the case mix index due to increased patient acuity. MedPAC does however expect the higher payments associated with the higher case mix index will generally match the higher costs. But it states "IRH/US will have to spread overhead costs among fewer cases and may not be able to completely adjust their costs for direct patient care to reflect the reduced volume. Having fewer patients may result in inpatient rehabilitation hospitals and units being less able to benefit from economies of scale." [See: MedPAC 2007 March 1 Report to Congress, pg. 213]. As a result of its analyses, MedPAC recommended a 1% increase in the update for IRH/Us, the only post acute care provider for which MedPAC made an update recommendation.

MedPAC also looked at the total spending for IRH/Us since the implementation of the rule. It found that Medicare payments to IRH/Us dropped in 2005, primarily due to the impact of the 75% Rule. It states that the payments were $2.2B in 2002, $6.2B in 2003, $6.6B in 2004 and $6.4B in 2005, a reduction of 3% from 2004. The $200M difference in the first year of the implementation of the rule vastly exceeds CMS' estimate of reduction in IRH/U payments of $5.4M. In its June 8 report, CMS selectively quotes MedPAC findings but does note that IRH/U payments have been leveling off since 2004.

2. *CMS is Overestimating the Estimated FY 2008 Payments and Underestimating the Drop in Medicare Payment to IRH/Us*

In the annual rule to update the IRH/U PPS, CMS has included rate setting files that include its estimated payments under the IRF PPS. For FY 08 it is estimating payments of $6.623 billion for an average payment of $14,811.06. The total estimated FY 2008 Medicare patient count is 447,163 as stated in Table 6. The June 8 CMS paper shows estimated payments of $6.5 billion but does not show a projected number of discharges except to estimate the 2006 volume at 412,000. By comparing patient volumes in 2004 to the patient volumes in the combined the two national field based databases, AMRPA modeled the current patient volumes for FY 2008 at 360,000.

Using CMS's estimated payment number of $6.623B and AMRPA's projected patient volume of 360,000, we project the actual Medicare budget for FY 2008 will be closer to $5.331B or $1.291B less than CMS's projection. The volume decrease that CMS is suggesting (from 459,682 in 2004 to 447,163 in 2008) dramatically understates the effect of these multiple policies – the 75 Percent Rule, FIs, and RACs – and is contradicted by every other study of current IRH/U patient volume. In fact, CMS's June 8 report appears to agree more with the field's analysis that volume is dropping dramatically (see CMS Report Figure 4) and that payments are dropping as well. Hence, we believe CMS is dramatically overstating both the budget and the patient volume for FY 2008 in the NPRM.

AMRPA has also tracked the financial impact of the rule and again our analyses show that the rule's effect (compounded by the FI and RAC activities) well exceed CMS' original estimates considerably. CMS estimated that the total savings for IRH/U payments in the first year would be $5.4 million. When CMS accounted for care in other settings it estimated total net savings of $2.4 million. Using the eRehabData® database we estimate that the drop in payments to IRH/Us in the first year of the rule for Medicare patients alone was approximately $343,332 million and for non-Medicare patients a decrease of $59.2 million as compared with payments in the year prior to implementation of the rule. In the upcoming fourth year of the rule when the compliance threshold moves to 65%, we project that the drop in Medicare payments alone to IRH/Us will be $1.372 billion as compared to the year prior to the rule; at 75% it will be $1.8 billion compared to payments in the year prior to the rule being implemented. In calculating these figures, AMRPA first calculated the average payment for the cases denied care based on the database. That amount is $9,916.00.

These figures do not reflect assumptions about the loss in payments due to the FI reviews and RAC activities. Hence, CMS has vastly and egregiously underestimated the financial impact of this rule on the IRH/U field. Prior to the rule's implementation, IRH/Us payments represented less than 1.5 % of Medicare payments; now, they must be even less.

The 75% rule and CMS's other policies have resulted in more acutely ill patients being treated in IRH/Us. AMRPA has examined the data regarding change in case mix through its eRehabData® project and reviewed the work done by the Lewin Group for a member of the association. We found, and we expressed this point in our FY 2006 and FY 2007 comment letters, that in each year that the rule has been implemented, that the case mix index has increased. We used the case mix index as the measure of change in acuity as opposed to weight per discharge. We understand that CMS chose to use weight per discharge from the RAND analysis to support its rationale for reducing the standard payment conversion factor in FY 2006 and FY 2007 for improved coding. We strongly disagreed with CMS' rationale for a reduction due to alleged coding changes. To date, CMS has decreased the standard payment conversion factor by 1.16% when the IRF PPS was implemented, by 1.9% in FY 2006 and 2.6% in FY 2007. In addition to these stated changes, we also noted in our comment letters that in analyzing the refinements to the CMGs in FY 2006 that CMS also reduced the weights by 2.2%, which also affected total payment. Hence to date, the standard payment conversion factor has been decreased by 5.66%.

Throughout this entire process over the last three years, and coincident with the implementation of the 75% rule and the other aforementioned policies, CMS has totally ignored their impact on actual case mix and other factors. In the first year of the 75% rule, (July 2004 to June 2005) the case mix index was 1.11; by the middle of June in the third year (July 2006 to June 2005) it had increased to 1.21. In calendar year 2002 before the rule, the CMI was 1.06. In calendar year 2003, it was 1.07. The length of stay and average Medicare reimbursement have also increased as a result of the rule. In the first program year of the rule, the LOS was 12.94 and in the third year 13.49. In calendar year 2003 the LOS was 12.67. Medicare payment in the first PY was $13, 654.00 and in the third year $15,182. In calendar year 2003, it was $12,464.50. As noted above, these changes in CMI, LOS, and reimbursement have also been remarked upon by MedPAC.

In addition there is an increase in the comorbidity tiers overall. For example in Tier 1, in the first PY the total percentage was 3.58% and by the third year it was 4.31%. In calendar year 2003, it was 3.31%.

Increases in CMI, cases with comorbidities, LOS (after an initial decrease at the start of the IRF PPS), and reimbursement are further testament to the change in acuity of the patients in IRH/Us as a result of Medicare's policies. However, CMS has not made changes in the IRF PPS to reflect these changes.

Summary

The continued drop in patient volume, impact on unintended populations, failure to recognize growing population clearly in need of IRH/U services, the increase in costs that cannot be otherwise covered by payments, the overall drop in payments, and failure to use current data to realign the IRF PPS to reflect the increase in acuity in case mix due to its policies cannot be sustained by the IRH/U field for an indefinite period. CMS has vastly underestimated the impact of this rule and FI and RAC reviews at every turn—by several orders of magnitude.

E. CMS Seeks to Have IRH/U Patients Treated in Lower Cost Settings without the Benefit of Evidence Based Research to Compare the Clinical Outcomes

1. Research to Date Shows Differences in Clinical Outcomes Between Sites of Care; IRH/Us Have Consistently Stronger Clinical Outcomes

As noted above in publishing the final rule on May 7, 2004, CMS estimated that patients no longer served in IRH/Us would find care by staying longer in the acute care hospital, or be referred to outpatient departments or other post acute care settings. CMS also stated" "we estimated that SNFs will have a higher probability than other settings of absorbing the cases not admitted to IRH/Us." 69 F.R. 25771, May 7, 2004. CMS has also referred at times to these others settings as less costly, appropriate sites of care. AMRPA has been concerned since the inception of this rule that all the patients mentioned above will not receive the same quality of care they receive in an IRH/U. Subsequent to and not before, the rule CMS asked NIH in February 2005 to conduct a Panel examining what conditions might be rightly served in IRH/Us with a focus on specific types of cases. It also asked the Agency for Healthcare Research and Quality (AHRQ) to conduct a literature review. AHRQ concluded that there is a paucity of comparative studies for each of the conditions of interest. Neither agency has instituted any research on the issue since this panel in November. NIH posted a notice in November, 2006 that CMS would work with researchers conducting NIH approved studies.

Last year AMRPA started a Research Committee which within less than a year pledged $2 million in funding for research and funded eight studies. It was also a key sponsor of the *State of the Science Symposium* held in February 2007 to discuss work in progress. We have shared abstracts with CMS, requested its comments and invited the staff to the Symposium, and they attended.

There have been a few seminal studies published comparing the clinical outcomes of care between IRH/Us and SNFs. These key cases concluded that the clinical outcomes in IRH/Us have been superior in terms of metrics such as percentage of cases that return to the community, percentage of cases that die, increase in functional scores, length of stay, need for home care services on discharge, retention of functional ability upon a six month follow up and the impact of rehabilitation on patients with depression, amotivation and cognitive impairment. These studies include:

1. *"What Is the Best Rehabilitation Setting to Maximize Outcomes after Hip Fracture for Community Dwelling Patients with Depression, Amotivation or Cognitive Impairment?"*, Michael C. Munin, M.D., et al, University of Pittsburgh, School of Medicine, Work in Progress presenter, State of the Science Symposium, Crystal City VA, February 12-13, 2007

2. *"Influence of Rehabilitation Site on Hip Fracture Recovery in Community Dwelling Subjects at 6 Month Follow Up,"* Michael C. Munin, M.D., University of Pittsburgh, School of Medicine, Archives of Physical Medicine and Rehabilitation Vol. 87, July 2006 pg. 1004

3. *"Effect of Rehabilitation Site on Functional Recovery after Hip Fracture"*, Michael C. Munin, M.D., University of Pittsburgh, School of Medicine, Archives of Physical Medicine and Rehabilitation, Vol. 86, March 2005 pg. 367

4. *"Outcome After Rehabilitation for Total Joint Replacement at IRH/U and SNF"*, Walsh, M.B., et al, Burke Rehabilitation Hospital, American Journal of Physical Medicine and Rehabilitation, Vol. 85, No. 1, January, 2006. This study is in the process of being updated to include the same outcomes as well as analyzing the cost of care and the severity of the patients. Results are expected this fall. The preliminary data shows that the clinical outcomes are similar to the first study: more patients go home with higher functional levels; fewer transfers to acute care; and a shorter length of stay at the IRH/U. They are also of similar severity and the costs are almost identical.

5. *"Clinical Outcomes of Cardiopulmonary Patients following Comprehensive Rehabilitation Inpatient Rehabilitation and Skilled Nursing Environments,"* Vincent, H. et al. Another study is looking at the clinical outcomes of cardiopulmonary patients in IRH/Us and SNFs. The preliminary data was presented at the *State of the Science Symposium* by Dr. Heather Vincent. Dr. Vincent noted that IRH/U patients participated in rehabilitation therapy services a greater percentage of days than SNF patients; there were more readmissions to acute care from the SNFs than IRH/Us; the percentage of patients discharged home was greater for IRH/Us than SNFs, and more patients died in SNFs than IRH/Us and length of stay in the IRH/U was less than 50% of that for the SNFs (14.9 vs. 34.7 days).

In addition to this field based research, MedPAC has examined the differences among single joint replacement patients who are discharged home with home health services, to SNFs and to IRH/Us. MedPAC commissioned the RAND Corporation to draft the report. RAND found that the patient populations differ across these sites. (See *"Comparison of Medicare Spending and Outcomes for Beneficiaries with Lower Extremity Joint Replacements,"* June 2005.) MedPAC found "compared with IRF patients, SNF patients, [with hip or knee replacements] are significantly older, have more comorbidities [such as delirium, congestive heart failure, and dementia] and complications [including postoperative pulmonary compromise, cellulitis or decubitis

ulcer, mechanical complications due to device or implant and iatrogenic complications] and are more likely to be eligible for both Medicare and Medicaid."

In its March 2007 Report to Congress, MedPAC noted that there was a decline in the quality of care for SNFs as well. (See MedPAC March 2007 Report to Congress pg. 173-175.) In its June 2007 report, MedPAC discussed further the issue of quality and highlighted several problems with SNFs. The SNF PPS encourages them to provide therapy even when it is of little or no benefit and the FY 2006 changes to the RUGs did little to change these incentives. Second, MedPAC further examined the issue of quality of care in SNFs. It examined the changes in factors associated with SNF rates of discharge to the community and rehospitalization between 2000 and 2004. It found that the rate of discharge to community is dropping and that rehospitalization rates are up, both of which reflect declining quality of care. Finally, it expressed several concerns that there is an inverse relationship between quality based on publicly reported measures and quality based on community and hospital discharge rates.

Historically the clinical outcomes for IRH/Us are very strong and reflect the focus of rehabilitation programs on patients' function with the goal of returning them to their most functional level and ideally to their home, families and community. IRH/Us have, both prior to and after the implementation of the IRF PPS, continued to return a high percentage of patients home. CMS saw this behavior in the RAND data used to establish the IRF PPS and in the data on which the refinements were based. Using eRehabData® we saw that the percentage of patients discharged to the community was 77.23% in 2002 and due to the change in case mix has decreased slightly to 71.61% in 2007. The mortality rate is negligible at 0.32% in 2002 and 0.26% in 2007. The increase in functional gain was 18.74 points in 2002, 19.17 in 2004, and continues to increase to 20.23 in 2007 even in the face of a more acute population. The LOS in toto is discussed above (13.38 in 2006) and for the most controversial cases under the 75% rule, lower extremity joint replacement, was 9.26 days in 2006. However, the average length of stay for skilled nursing facilities is 25 days, according to the American Health Care Association's statement before the Ways and Means Committee. A recent article published in the Archives of Physical Medicine and Rehabilitation, *Are We Selecting the Right Patients for Stroke Rehabilitation in Nursing Homes?*[May 2005, pg. 876], found that after three months (as opposed to days in IRH/Us) 36.9% of patients were discharged to the community, 16.6% had died and 46.5% remained in the nursing home.

In addition, the Office of the Inspector General Department of Health and Human Services just released a report *"Review of Rehabilitation Services at Skilled Nursing Facilities – Avante at Leesburg"* [May 2007, OIG A-06-06-00107] found that claims were denied by a Program Safety Contractor because the services were not necessary at the level provided by a SNF, and several RUGs had to be downcoded. Hence, at least one PSC is skeptical of SNFs' delivery of appropriate care. Finally, the Center for Medicare Advocacy notes in its March 8 weekly alert:

"In general, IRF patients must require physician supervision and intense, coordinated, multi-disciplinary care. Residents in SNFs qualify for Medicare coverage of their stay if they receive therapy services five days per week. The medical oversight, intensity, and coordination of care in a SNF is usually less than that in and IRF.

"A 2002 Government Accountability Office (GAO) study reported that, two years after implementation of a Medicare prospective payment system (PPS) for SNFs, residents assigned by SNFs to medium and high rehabilitation groups received less therapy the before PPS and half did not receive the minimum number of minutes that were needed to be classified in those rehabilitation groups. SNFs told the GAO that the high and medium rehabilitation groups had 'more favorable payments, relative to their costs, than other categories.' The GAO concluded:

> Our work indicates that SNFs have responded to PPS in two ways that may have affected how payments compare to SNF costs. SNFs have (1) changed their patient assessment practices and (2) reduced the amount of therapy services provided to Medicare beneficiaries. The first change can increase Medicare's payments and the second can reduce a SNF's costs.

"In addition, SNFs may not have sufficient nursing staff to meet the needs of residents requiring rehabilitation. The GAO found that SNFs did not increase their nursing staffing after the new highly profitable Medicare reimbursement system was implemented, even when Congress added money to Medicare rates specifically for nursing services."

We continue to find it appalling that CMS seeks to decrease an entire provider type, large volumes of patients in post acute care, and a high percentage of its patients and force them into an alternative provider for whom CMS has very little data on quality and for which the existing published data shows low and deteriorating quality.

2. *CMS May Not Be Saving Medicare Funds By Forcing IRH/U Patients To Go To Alternate Sites of Care Such as SNFs.*

AMRPA has looked closely at the IRH/U Medicare payments for cases being turned away. These are specifically joint replacement, orthopedic, arthritis, and the medical conditions such as cardiac, pulmonary, and pain. Of the cases being denied based on our analyses, the average payment is $9,916.00. For joint replacement cases alone in calendar year 2007 (all tiers), it was $10,250 for an average LOS of 9.6 days. Based on MedPAC information in the June 2007 report, 80% of SNF patients are receiving rehabilitation. In 2006, CMS revised the RUG system to add nine more rehabilitation RUGs. The FY 2006 RUGs urban payment rates ranged from the highest rehabilitation extensive service RUG of $538.10 to $239.23 for the lowest rehabilitation RUG. The highest rehabilitation RUG without extensive services payment (RUC) is $495 per day or $12,375.00 per stay at 25 days, not accounting for the Medicare payments for readmissions when the average DRG payment would be an additional $5,000. Hence there is a serious question of whether the Medicare Trust Fund is saving money as CMS alleges.

The Center for Medicare Advocacy notes:
"While the *per day* costs of IRFs are considerably higher than those of SNFs, the significantly shorter lengths of stay in IRFs may serve to reduce the *per episode* costs of care. Moreover, since IRF patients are more likely to go home than to remain in an institutional setting, 'any potential cost saving from the less expensive SNF settings may be mitigated.'"

Summary

CMS has proceeded with the implementation of the 75% Rule and its other policies without recent clinically based evidence available about the differences in care among the potential sites of care to which IRH/U patients are sent due to the rule. By CMS' own admission it expects most of these patients to go to SNFs. However the studies to date, plus critical research conducted by MedPAC raise serious doubts about the clinical care and outcomes these patients are receiving.

Furthermore, if these alternative settings are to be honestly equivalent then it is reasonable to expect that the same or equivalent requirements for processes of care and safety are required of those in other settings and that there are clear measures of quality outcomes available and which are readily understood. MedPAC has repeatedly recommended that CMS amend the SNF PPS to collect admission and discharge data. The intensity of the therapy services should also be monitored qualitatively and quantitatively. The intake status and medical and functional outcomes should be measured to be able to demonstrate equivalence at the level of patient impact. Safety concerns should be addressed. IRH/Us have many resources routinely expended to assure error avoidance, surveillance for high risk conditions, such as deep vein thromboses (DVT), etc. Other allegedly equivalent settings providing rehabilitation services should be required to monitor and report similar or identical measures as those required of IRH/Us.

AMRPA recommends that the research that is currently being conducted be completed and that CMS and the field then engage in an informed debate about the appropriate sites of care for these patients as well as discuss alternative definitions of IRH/Us and similar standards of care for SNFs. Additionally, there are several questions as to whether or not CMS is truly saving money given the difference in the length of stay and higher readmission rates.

VII. Summary and Recommendations

The IRF PPS has been one of CMS' success stories in the implementation of a prospective payment system. Once CMS contracted with the RAND corporation and entered into a collaborative process with the field, it was developed and implemented very smoothly. However since that time, CMS has been aggressive in FY 2006 and FY 2007 in making coding adjustments based on outdated data that does not reflect the impact of its current policies with respect to the 75% Rule and with respect to medical necessity denials. The net result of these approaches is a heavy handed approach aimed at reducing if not eliminating the entire IRH/U field to the detriment of the over 400,00 Medicare beneficiaries served per

year and the 200,000 non-Medicare beneficiaries, including wounded soldiers returning from the Iraq war.

CMS states that certain IRH/U patients can be served in allegedly less costly, appropriate sites of care. We believe these statements reflect simply a cost driven desire to seek savings of Medicare dollars, which is a worthy and supportive goal. Whether any savings occur is questionable. However, the cost of these allegedly saved dollars is the welfare, ability, and lives of over 100,000 plus patients to date, with more to follow.

Recommendations:
AMRPA recommends that:

1. CMS update the IRF PPS with additional refinements, using more current data since the CMS policies regarding the 75% Rule, FI reviews, and RAC program were implemented, e.g. 2005, 2006, 2007 data.
2. CMS work with the field to create and discuss an analytical framework to examine real changes in the case mix index and coding improvements and use more recent data in calculating the CMG weights and length of stay. MedPAC made a similar recommendation.
3. CMS support freezing the 75% Rule at a 60% compliance threshold percentage.
4. CMS retain the comorbidity policy and amend it as recommended above.
5. CMS amend the comorbidity policy regulation to make the presumptive methodology the standard for compliance.
6. CMS meet with representatives of the inpatient rehabilitation facility community and other experts in rehabilitation and delivery of health services to discuss revisions of the exclusion criteria for an IRH/U and focus on the statutory intent of the exclusion criteria: to distinguish IRFs from general acute care hospitals for purposes of payment under the IRF PPS. In doing so, CMS should move away from diagnostic-based criteria. In the interim, it should meet with a panel of experts to define additional diagnoses that would benefit from IRH/U services.
7. CMS develop distinct definitions for other post acute care providers such as skilled nursing facilities offering rehabilitation services. We are aware that such an effort is taking place with the LTCHs.

Attachments

1. AMRPA Funded Research Study Summaries
2. Tables from JOINTS Comorbidities Study
   a. Table 1 – Comorbidities 1-9 in SNFs and IRFs
   b. Table 2 – Examples of Comorbidities among Unilateral Knee Replacement Patients in Inpatient Rehabilitation Facilities (IRFs) by Severity, Change in FIM scores, Length of Stay, and Minutes of Therapy/day (N = 704)
   c. Table 3 – Patients with Select Comorbidities Compared to Patients in the Least Severe Group among Unilateral Knee Replacement Patients in Inpatient Rehabilitation Facilities (IRFs) (N = 704)
   d. Figure 1 – Discharge Motor FIM Gains among Unilateral Knee Replacement Patients with Select Combinations of Comorbidities in SNFs and IRFs by Annual Volume of Joint Replacement Patients

3. Case Studies on Comorbidities
4. Moran Company Reports
   a. QII 2006
   b. QI 2007
5. Rehabilitation Hospitals and Units and Beds (Percentage Change) Corrected, 2002-2007
6. Are We Selecting the Right Patients for Stroke Rehabilitation in Nursing Homes? Patrick Murray, MD
7. Rehabilitation of Surgical Cancer Patients at University of Texas M. D. Anderson Cancer Center, Rajesh Yadav, MD
8. Policy Issues Related to the Rehabilitation of the Surgical Cancer Patient, Maria Hewitt, DrPH; Stephanie Maxwell, PhD; Mary M. Vargo, MD
9. Center for Medicare Advocacy, Inc., *CMA Weekly Alert – March 8, 2007*, Maintaining Quality Rehabilitation Options for Medicare Beneficiaries

American Medical Rehabilitation Providers Association

Burke Rehabilitation Hospital
Rehabilitation Following TKR, THR, and Hip Fracture
A Case Controlled Comparison of Cost and Outcomes

Principal Investigator: Mary Beth Walsh, M.D.

Summary

1. Objective: The objective of this study is to replicate the original published study "Outcomes following Rehabilitation for Total Joint Replacement at IRF and SNF – a Case Controlled Comparison" while also controlling for comorbidities and severity of illness as well as analyzing the overall costs of the services provided.

2. Design: The original study was a retrospective data chart review. The key design factors were:
   a. Patients are paired by characteristics for each site. For example they match for age, gender, type of surgery (joint, cardiac procedure, pulmonary transplant as examples) and operative diagnosis, functional independence measure score at admission both motor and cognitive.
   b. The study requires all participating facilities to have collected functional independence measure data. All IRFs do; a minimal number of SNFs do.
   c. Comparisons need to be made at discharge. These include comparing functional independence measure scores, for mobility, device used for ambulation, ambulation distance, disposition, and length of stay. For cardiac and pulmonary patients other/ additional measures would be appropriate.
   d. The year was 2004, prior to the full impact of the 75% rule.
   e. Patients would also need to be matched for comorbidities as was done here.

   The following additions will be made to the study:
   a. Include hip fracture as a 3rd diagnostic group
   b. Obtain copies of each patient's UB92 from the acute hospital where the surgery was done, and apply the 3M ARP-DRG Grouper to these codes, obtaining a relative weight and severity of illness score. We would then match the pairs of patients for this severity of illness score, as well as age, diagnosis and initial ambulation FIM. In addition, we will also match the pairs for memory and problem solving components of the FIM.
   c. Each patient will be contacted by phone at monthly intervals following discharge for 6 months, and their use of health care services will be assessed and copies of all bills/reimbursement information obtained. Ambulation status and rehospitalization will be recorded.

American Medical Rehabilitation Providers Association

National Rehabilitation Hospital
How Comorbidities Can Be Taken into Account to Determine Rehabilitation Admission to a SNF or IRF

Principal Investigator: Gerben DeJong, Ph.D.

Summary

3. Objective: The objectives of this study are:
   a. Determine how severity and/or various comorbidities at admission are associated with discharge severity and discharge function in the initial JOINTS study patients;
   b. Use data from JOINTS patients to determine the level of association between discharge severity and discharge function;
   c. Evaluate whether a given comorbidity or combination of comorbidities provides prima facia evidence that the comorbidity is a severe one;
   d. Identify a subset of severity indicators for specific comorbidities taken from the admission CSI score that explains most of the variance in observed overall admission CSI severity score and which therefore could be used in post-acute placement policy and decision making;
   e. Use the JOINTS dataset to evaluate the tiering of comorbidities now used in the IRF-PPS;
   f. Use data from the Post-Stroke Rehabilitation Outcomes Project (PSROP) to determine the level of association between discharge severity and discharge function. (Validate the association between discharge severity and function for joint replacement patients using data from the JOINTS study);
   g. Use data from the PSROP to validate the JOINTS findings in regarding comorbidities and their associations with admission CSI ranges and tiering of comorbidities and their association with outcomes for stroke rehabilitation patients; and
   h. Disseminate comorbidity study findings through presentations and publications.

4. Design: Each objective will be achieved differently using the following methods:
   a. Objective a
      - Form subgroups of patients based on type of replacement and on ranges of the admission CSI continuous score and determine the significance of the differences in average discharge severity and discharge function within these subgroups using analysis of variance
      - Form subgroups of patients based on numbers and/or types of comorbidities and determine the significance of the differences in average discharge severity and discharge function within these subgroups using ANOVA.
   b. Objective b
      - Determine the frequency of Type II and Type III outcomes for the JOINTS study group as a whole and for SNFs and IRFs separately.
      - Discharge CSI score with discharge FIM and its components, motor and cognitive.

- Break up the discharge CSI score into a subscore based on function criteria and a subscore based on non-function criteria[5] and determine how each subscore correlates with discharge FIM and its components using correlation r.

c. Objective c
   - Examine patients with select comorbidities and determine their CSI scores. We will develop ranges of CSI scores for patients with the select comorbidities.
   - Form subgroups of patients based on ranges of the admission CSI continuous score and determine how different the comorbidities are for patients in each of the CSI subgroups. If there are essentially different comorbidities in each of the subgroups, then we can determine those comorbidities that are associated with higher admission CSI scores. If the comorbidities are quite similar in each of the admission CSI score subgroups, then we will need to perform the next objective 4.

d. Objective d
   - We expect that relatively few admission CSI criteria (and their severity levels) occur frequently in the common comorbidities. We will determine what they are and how well they predict the overall admission CSI severity score.

e. Objective e
   - Compare the predictive ability of the tiering of comorbidities now used in the IRF-PPS with the predictive ability of the admission CSI to predict resource utilization (i.e., rehabilitation LOS) and outcome (i.e., discharge function and discharge location), using R^2 or c statistics for ordinary least squares or logistic regression, respectively.

f. Objective f
   - Determine the frequency of Type II and Type III outcomes for stroke patients in the PSROP database (N = 1291).
   - Using the PSROP database, correlate discharge CSI score with discharge FIM and its components, motor and cognitive, using correlation r.
   - Break up the discharge CSI score into a subscore based on function criteria and a subscore based on non-function criteria[6] and determine how each subscore correlates with discharge FIM and its components using correlation r.
   - Compare the results for PSROP patients with those found in objective 2 above for JOINTS patients.

g. Objective g
   - Provide evidence about the extent to which the findings from the JOINTS study can be generalized to other rehabilitation impairment categories (RICs). If an analysis of the PSROP data (neuro patients) and JOINTS data (ortho patients) result in similar findings, we have a reasonably strong basis for believing that the findings can probably be generalized to other patients with primary conditions not on the list of 13 conditions that govern the 75% rule.

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[5] The CSI is a measure of severity, i.e., acuity, but has some functional components or elements within it. We will extract the functional elements so that the CSI and FIM scores are independent of one another and there is not inadvertent overlap between the CSI and FIM because of the CSI's function-related elements.

[6] The CSI is a measure of severity, i.e., acuity, but has some functional components or elements within it. We will extract the functional elements so that the CSI and FIM scores are independent of one another and there is no inadvertent overlap between the CSI and FIM because of the CSI's function-related elements.

h. Objective h

- Use research results to help shape the policy and clinical discussion on the role of comorbidities in the development of post-acute placement policy, the design of a uniform post-acute patient assessment instrument, and in post-acute payment policy.

American Medical Rehabilitation Providers Association

Fleming-AOD

eSNFdata.com

Principal Investigator: Sam Fleming

Summary

1. Objective: The objective is to quickly and efficiently create a data repository and automated analytic system congruent to eRehabData® for the capture, storage and analysis of functional outcome Skilled Nursing Facility (SNF) data as well as some reimbursement measures. Such a system would allow for classification of SNF patients into the IRF CMGs and allow for comparisons of the patient populations across a broad spectrum of measures and diagnostic categories. The assessments in the SNF database would be based on a slightly simplified IRF-PAI with the addition of RUGs tracking categories. Such a database would be the most comprehensive and comparable data set available to the industry for purposes of policy and management work. Given decent levels of participation, this would result in comparative databases. Such a system may also be able to accept uploads from prior functional data collection efforts to broaden the database retroactively. This would depend on the previous data collection efforts.

   The system would not replace a facility's MDS-PAC solution at this time but that could be added at a later date given a large enough subscriber base. The system would also not provide for any mandatory CMS data submission.

2. Design: Fleming-AOD has a code base and experience with creating outcomes systems developed along with the eRehabData® system, so a system could be created for SNFs rapidly and with very high confidence.

3. Results Expected:
   a. July 1, 2006 launch date to ensure 6 months of data by December 31, 2006 – preliminary results will be available after 60 days
   b. Enlisting the first 25 SNFs who can commit to the July 1 launch date along with any additional facilities
   c. Train SNF personnel in ICD-9 and FIM scoring through IT HealthTrack

American Medical Rehabilitation Providers Association

Frazier Rehabilitation Hospital

Outcomes of Patients with Cardiac or Pulmonary Conditions in an Inpatient Rehabilitation Facility or in a Skilled Nursing Facility

Principal Investigator: Judah Skolnick, M.D.

Summary

1. Primary Objective: The primary objectives of this study are:
   i. To determine the differences in outcome by site (IRF/SNF);
   j. To determine predictors of outcomes within an IRF or SNF; and
   k. To identify characteristics that differentiate patients success in an IRF versus a SNF.

2. Secondary Objective: The secondary objectives of this study are:
   l. To identify the characteristics of cardiac or pulmonary patients admitted to an IRF versus a SNF and
   m. To identify the impact of co-morbidities on cardiac or pulmonary patients and their utilization of rehabilitation services. Are there cardiac patients with specific comorbidities who may benefit more from IRF care than SNF care?

3. Design: The study will be performed using the following process:
   n. A multi-site, multi-disciplinary Research Team will be formed. Team members will include representatives from each site. These may include the medical director or lead researcher from each site and lead clinicians from various disciplines. The disciplines may include but are not limited to medicine, physical therapy, exercise physiology, psychology, nursing, researchers, occupational therapy, epidemiologists, and social work. This team will: 1) determine patient criteria; 2) develop the protocol; 3) work to obtain Institutional Review Board approval; 4) identify data collection personnel; 5) provide leadership and guidance throughout the process; 6) foster communication between all involved parties; and 7) assist throughout the project.
   o. Key clinicians (site co-PI's) will be identified to assist with the research project. The Project Manager, based in Louisville will provide overall coordination of this multi-site study. This individual will lead the group with direction from the research team. The clinicians will further define the study, identify each discipline's care process, create data collection tools, and work to develop the documentation process.
   p. Each Site will identify study coordinators to monitor data collection and data input into a web-based data collection tool.
   q. All follow-up data will be collected by telephone and will be completed through the use of a "call center" model. This call center will be located at the lead site.
   r. Study questions will be examined as to determine the types of models and statistics necessary to answer specified questions. Data to identify outcome variables will be identified and preliminary questions and outcomes measures are provided within this proposal.
   s. Data collection personnel and statisticians will be involved in the development of data collection tools. Multi-site personnel will receive training on the collection and

documentation of necessary clinical information for this study. Each discipline will be involved.

t. Statisticians from the University of Louisville will be part of the research team and will be involved in methodology and analysis throughout so that the correct data can be collected.
u. Preliminary data will be presented in the spring of 2007 with final analysis completed by February 2009.
v. Once these data are analyzed, recommendations for clinical practice and public policy will be formulated and disseminated. At the conclusion, the results will be used for development of new interventions, formulation of additional research, and publications in peer-reviewed journals, presented at professional conferences and made available through both print and electronic media.
w. Training and multi-site communication will be done via teleconferences or on-site meetings.

American Medical Rehabilitation Providers Association

National Rehabilitation Hospital
JOINTS II
Follow-up and Expenditure Study

Principal Investigator: Gerben DeJong, Ph.D.

Summary

1. Objective: The objective of this study is to follow-up on the JOINTS I study, a study of hip and knee replacement rehabilitation in 11 skilled nursing facilities (SNFs) and 11 inpatient rehabilitation facilities (IRFs) located throughout the nation. The JOINTS I study, when complete, will include a total of 2,800 hip and knee replacement patients, carefully describe the practice of joint rehabilitation care in SNFs and IRFs, and determine how these practices are associated with patient outcomes taking into account patient covariates. The JOINTS study is intended to uncover best practices in both settings of care that can assist in determining which setting of care is most appropriate for which types of patients.

   The JOINTS II Follow-up and Expenditure study will be condusted in collaboration with the Lewin Group and a survey research group, yet to be named.[7] The NRH-ICOR Team will take the lead in developing the follow-up portion of the study and the Lewin Group will take the lead in the expenditure portion of the study, particularly the assignment of expenditures to the initial rehabilitation episode and downstream health care utilization such as hospitalizations.

2. Study Questions: The study will answer the following questions:
   x. What are the 6-month outcomes of joint replacement patients discharged from SNF and IRF?
   y. How are the specific interventions or combinations of interventions in SNFs and IRFs for joint replacement patients associated with 6-month outcomes taking into account patient differences? Are they the same or different than those observed for outcomes observed upon discharge from a SNF or IRF?
   z. What are the expenditures associated with a patient's rehabilitation care in a SNF or IRF? What are the expenditures for post-discharge health care utilization especially hospitalization and institutionalization during the first 6 months following an admission to a post-acute setting? How are these expenditures associated with the type of patient, type of care, and reimbursement for care received in a SNF or IRF taking into account patient differences? Which setting of care results in the greatest expenditure savings for which types of patients?

3. Design: The study will recruit patients after they have left the facility and provide for a telephone-administered informed consent process. The patients will then answer a telephone questionnaire covering the following areas:
   aa. Living arrangement

[7] The NRH-ICOR team is currently in discussion with a survey group regarding its potential participation in the follow-up study.

bb. General health
cc. Sentinel complications (e.g., wound infections, DVTs)
dd. Functional status
ee. Community integration
ff. Participation in employment and/or school
gg. Health care utilization (e.g., rehospitalizations, physician visits, emergency room visits, use of prescription drugs) and,
hh. Post-discharge receipt of rehabilitation services (at home, at an outpatient center, or as an inpatient at a SNF, IRF, or long-term care hospital (LTCH)

In addition, expenditure data will be analyzed for both (1) the original SNF and IRF stays and (2) any expenditures associated with downstream health care utilization up to 6 months following admission to a SNF or an IRF. These data will then be compared to synthetic prices and expenditure estimates created from Medicare claims data. All data from the JOINTS I study will be linked to that of the JOINTS II study.

American Medical Rehabilitation Providers Association

Fleming-AOD

Rehabilitation Placement Factors Data Collection Instrument

Principal Investigator: Sam Fleming

Summary

1. Objective: The objective of this study is to design and construct a data collection instrument on the factors that may impact post-acute rehabilitation placement. The patients for whom this tool would be applicable are those that have already been deemed to gain benefit from an inpatient post-acute rehabilitation stay, either in a skilled nursing facility (SNF) or inpatient rehabilitation facility (IRF). The tool will initially be targeted toward those factors related to joint replacement patients, but it may be expanded later as deemed appropriate.

2. Design: Fleming-AOD will design and deploy the instrument into both the eRehabData® and the eSNFdata systems. The data collected in the instrument would then be analyzed for both SNF and IRF settings in an attempt to define differences in the patient populations and also compare the instrument's scores with the final clinical and functional outcomes for the two different systems.
   The proposed dataset consists of 30 total items. Items for inclusion in the dataset were selected based on the following criteria:
   a. Relationship to potential determinants of rehabilitation placement for patients following a total hip or total knee replacement
   b. Measures selected are based on review of the literature and experience of experts
   c. The data set can be used by an SNF or IRF
   d. Data collection efforts must not be overly burdensome to the SNF or IRF
   e. Reliance on patient self report and recall of previous level of function is minimized
   f. Item selection is based on using the dataset in conjunction with the items on the IRF-PAI and MDS

3. Special Note: One of the principles of this study is the differentiation between rehabilitation *potential* versus *placement*. For purposes of this study, rehabilitation potential may be described as the capacity or likelihood that the patient will demonstrate improvement in function, as compared to the maximum possible improvement. The rehabilitation placement decision is the consideration given to the discharge of patients to the post acute setting where the patient has the greatest opportunity (or potential) to regain the maximum return of function.
   To fully assess rehabilitation potential, data should be collected on patients that are discharged to an inpatient post acute rehabilitation setting as compared to those that are not. This tool will collect data on the factors that lead to the rehabilitation placement decision of SNF or IRF, and as data is collected over time, rehabilitation *potential* can be discerned from an analysis of the factors affecting the rehabilitation placement decision, in conjunction with the outcome of treatment.

American Medical Rehabilitation Providers Association

UVA Inpatient Rehabilitation Hospital

Cardiopulmonary Inpatient Rehabilitation Populations

Principal Investigator: Heather K. Vincent, M.D.

Summary

1. Objective: The objectives of this study are:
   a. To determine the frequencies of various cardiopulmonary population types referred to the IRF and SNF;
   b. To characterize the clinical outcomes (LOS, FIM scores and efficiency, charges, discharge disposition) and outcome differences of available cardiopulmonary populations in the IRF and SNF;
   c. To systematically evaluate whether additive pulmonary or cardiac comorbidities (secondary diagnoses to primary cardiac diagnoses) differentially affect outcomes compared with pulmonary or cardiac diagnoses alone;
   d. To identify which individual patient characteristics and treatment factors best predict good clinical outcomes of cardiopulmonary patients in the IRF and SNF; and
   e. To identify which type of cardiopulmonary patient might be best suited for the IRF and the SNF.

2. Hypothesis: The following hypotheses will be studied:
   a. The frequencies of cardiopulmonary population types will be similar in the IRF and SNF settings;
   b. Based on current evidence in other populations, patients in the SNF will demonstrate similar gains in function, but a longer LOS, lower FIM efficiency and potentially higher charges than the IRF;
   c. Additional comorbidities to the primary cardiac or pulmonary diagnosis will have a negative interactive effect on the clinical outcomes in both the IRF and SNF; and
   d. Several specific patient characteristics such as age and male gender for example, and aggressive treatment factors might best predict good clinical outcomes in cardiopulmonary patients in the IRF and SNF.

3. Design: The study will be performed in three phases over twelve months.
   a. **Phase 1:** A 2-3 month data collection period during which all data forms as needed, electronic data can be supplied and chart reviews can be performed at specific study sites.
   b. **Phase 2:** Data analyses and preliminary presentations can be generated.
   c. **Phase 3:** A final utilization and dissemination of the data will be completed that overlaps with Phase 2.

American Medical Rehabilitation Providers Association

Washington University School of Medicine Rehabilitation Outcomes for Older Adults with Acute Deconditioning: Acute Rehabilitation vs. Skilled Nursing Facility Treatment

Principal Investigator: Ellen Binder, M.D.

Summary

1. Objective: The objectives of this study are:
   a. To test the hypothesis that patients with a primary diagnosis or acute exacerbation of a cardiac or pulmonary condition during hospitalization for an acute medical or surgical problem will achieve a higher level of independence, lower re-hospitalization rates, and a higher rate of discharge to home after treatment at an acute rehabilitation facility (ARF), in comparison to patients admitted to a skilled nursing facility (SNF);
   b. To test the hypothesis that patients admitted for treatment of deconditioning will achieve higher FIM scores, have lower re-hospitalization rates, and higher rates of discharge to home after treatment at an ARF compared to those treated at a SNF;
   c. To determine the characteristics of patients with deconditioning who have greater improvements in FIM scores ($\geq$20 point increase), such as specific medical diagnoses, utilization of surgical procedures during acute hospitalization, use of supplemental oxygen, number of PT/OT sessions, length of rehabilitation stay, residence, prior to hospital admission, and location of rehabilitation care (ARF vs. SNF); and
   d. To determine the characteristics of cardiac and pulmonary patients who have greater improvements in FIM scores ($\geq$20 point increase), such as specific medical diagnoses, utilization of surgical procedures during acute hospitalization, use of supplemental oxygen, number of PT/OT sessions, length of rehabilitation stay, residence, prior to hospital admission, and location of rehabilitation care (ARF vs. SNF).
2. Design: The study will be conducted as follows:
   a. Facilities: The Rehabilitation Institute of St. Louis (TRISL) an 80-bed ARF and Barnes-Jewish Extended Care (BJEC) a 120-bed SNF
   b. A retrospective cohort study of 400 patients admitted to TRISL or BJEC between February 2005 and February 2006 (200 patients per facility). Patients will meet the following criteria: 55 years or older, Medicare eligible at the time of admission, and have a primary diagnosis of deconditioning or weakness.
   c. The following data will be collected on each patient:
      - Demographics including age, sex, marital status, type of residence upon admission and discharge from rehabilitation
      - Medical diagnoses (including primary and secondary diagnoses and comorbid conditions)
      - Number and classes of medications prescribed
      - Selected laboratory data
      - Body weight
      - Number of physical, occupational, and speech therapy sessions

- Any surgical or invasive medical procedures performed
- Use of supplemental oxygen during acute hospitalization or rehabilitation stay
- Hospital and acute rehabilitation or SNF length of stay
- FIM or ADL scores at admission and discharge from the respective rehabilitation facility

d. Conduct interviews using a standardized questionnaire to determine functional status and hospital readmission rates at 6 months post-discharge from the rehabilitation setting, and to collect information about utilization of health services (hospitalization, home care, SNF care) in the year prior to the incident hospitalization that is not available in the medical record.

Table 1
Comorbidities 1-9 in SNFs and IRFs

Comorbidity	SNF (N=550)	IRF (N=704)	Total (N=1254)
1. Stroke	1	11	12
2. Spinal cord injury	0	0	0
3. Congenital deformity	8	15	23
4. Amputation	0	2	2
5. Major multiple trauma	0	0	0
6. Hip fracture	3	2	5
7. Brain injury	1	5	6
8. Neurological disorder[8]	5	7	12
9. Burns	0	2	2
Total	18	44	62
Percent of total	3.3%	6.3%	4.9%

Source: NRH Center for Post-acute Studies & ICOR. JOINTS Study, 2006-07

[8] Includes multiple sclerosis, motor neuron diseases, polyneuropathy, muscular dystrophy, and Parkinson's disease.

Table 2
Examples of Comorbidities among Unilateral Knee Replacement Patients in Inpatient Rehabilitation Facilities (IRFs) by Severity, Change in FIM scores, Length of Stay, and Minutes of Therapy/day (N = 704)

Variable[9]	75% Rule Conditions 1-9[10]		Morbid Obesity BMI≥40		Diabetes		Depression/ Anxiety		Ischemic Heart Disease		Anemia[11]		Metabolic Syndrome[12]	
	Yes (N=44)	No (N=660)	Yes (N=104)	No (N=600)	Yes (N=166)	No (N=538)	Yes (N=148)	No (N=556)	No (N=119)	No (N=585)	Yes (N=199)	No (N=255)	Yes (N=135)	No (N=572)
Admission Severity[13]	33.9*	29.5	31.8	29.4	32.7*	28.9	31.1	29.4	31.1	29.5	32.8*	28.2	31.4	29.4
Adm Motor FIM	39.8	42.6	42.0	42.5	41.0*	42.9	41.3*	42.7	39.8*	42.9	42.7	43.1	41.8	42.5
Δ Motor FIM[14]	23.4*	25.9	26.5	25.6	26.5	25.6	25.6	25.8	26.4	25.6	24.9	25.6	26.2	25.7
Adm Cognitive FIM	28.4	30.2	30.5	30.0	29.8	30.2	29.9	30.2	28.9*	30.4	29.6	30.4	29.8	30.2
Δ Cognitive FIM	2.8	2.6	2.4	2.7	2.9	2.5	2.3	2.7	2.8	2.6	3.1*	2.3	3.0	2.6
LOS[15]	10.3*	8.9	9.1	9.0	9.5	8.9	9.7*	8.8	10.1*	8.8	8.8	9.1	9.5	8.9
Minutes of tx per day	118.7	125.4	125.4	124.9	124.1	25.2	125.1	124.9	123.2	125.3	125.5	121.9	123.4	125.3

Source: NRH Center for Post-acute Studies & ICOR. JOINTS Study, 2006-07.

*p < .05 (Some differences may be statistically significant because of large sample size but may not be clinically significant).

[9] Expressed in mean values.
[10] Conditions 1-9 include the following conditions:
1. Stroke
2. Spinal cord injury
3. Congenital disorder
4. Amputation
5. Major multiple trauma
6. Hip fracture
7. Brain injury
8. Neurological disorders (including multiple sclerosis, motor neuron diseases, polyneuropathy, muscular dystrophy, and Parkinson's disease
9. Burns

[11] Hematocrit = 27-30.
[12] Metabolic syndrome can have more than one definition. This column examines patients with any combination of diabetes, hypertension, or lipid disorders.
[13] As measured by the Comprehensive Severity Index (CSI). Higher scores indicate more severity.
[14] FIM = Functional Independence Measure.
[15] Length of Stay

Table 3
Patients with Select Comorbidities Compared to Patients in the Least Severe Group among Unilateral Knee Replacement Patients in Inpatient Rehabilitation Facilities (IRFs) (N = 704)

aa

Variable[16]	*Reference Group* Least Severe Group All Patients with Max Severity ≤20 (N=103)	75% Rule Conditions 1-9[17] (N=43)	Morbid Obesity BMI≥40 (N=95)	Diabetes (N=146)	Depression/ Anxiety (N=128)	Ischemic Heart Disease (N=95)	Anemia[18] (N=188)	Metabolic Syndrome[19] (N=114)
Admission severity[20]	13.8	34.5*	33.3*	35.1*	34.0*	35.7*	34.7*	33.9*
Adm Motor FIM	43.1	39.6*	42.1	41.0*	41.1	39.2*	42.8	42.1
Δ Motor FIM[21]	25.9	23.6	26.5	26.3	25.4	26.7	24.9	25.8
Adm cognitive FIM	31.2	28.6*	30.4	29.6*	29.6*	28.6*	29.6*	29.5*
Δ Cognitive FIM	2.2	2.6	2.3	3.0	2.4	2.7	3.2	3.1
LOS[22]	7.8	10.4*	9.2*	9.7	10.1*	10.3*	8.9	9.6*
Minutes of tx per day	124.7	118.7	125.7	124.1	125.8	124.6	125.6	124.1

Source: NRH Center for Post-acute Studies & ICOR. JOINTS Study, 2006-07.

Note: The number of patients in each comorbidity group are slightly different from the number shown in Table 2. The difference is attributable to the fact that some patients in the comorbidity groups had maximum severity scores ≤20 and therefore included in the reference group, not the comorbidity group.

*p < .05; statistically significant from those in the reference group (i.e., patients with a maximum severity ≤20 in Column 1. (Some differences may be statistically significant because of large sample size but may not be clinically significant.)

[16] Expressed in mean values.

[17] Conditions 1-9 include the following conditions:

10. Stroke
11. Spinal cord injury
12. Congenital disorder
13. Amputation
14. Major multiple trauma
15. Hip fracture
16. Brain injury
17. Neurological disorders (including multiple sclerosis, motor neuron diseases, polyneuropathy, muscular dystrophy, and Parkinson's disease
18. Burns

[18] Hematocrit = 27-30.

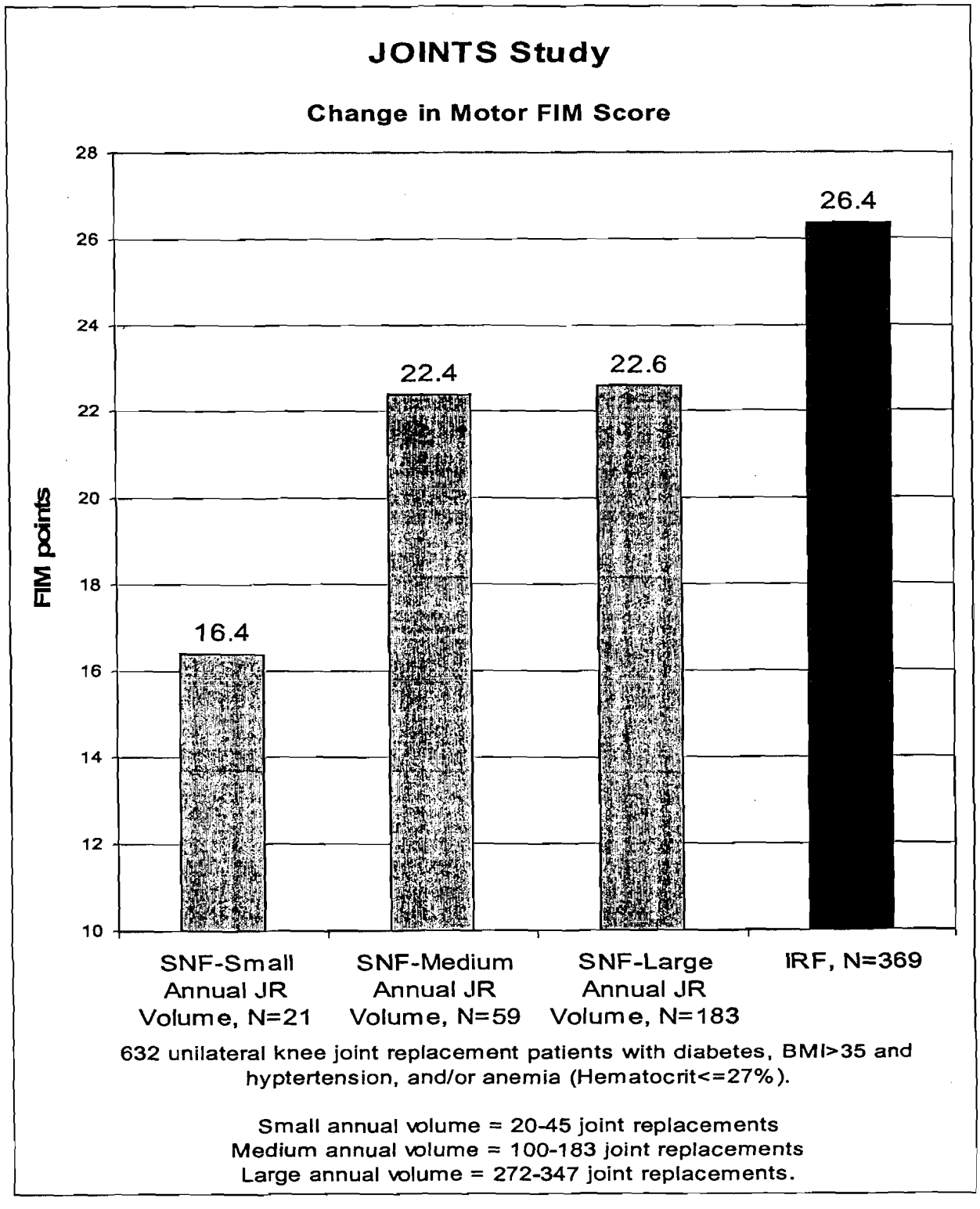
[19] Metabolic syndrome can have more than one definition. This column examines patients with any combination of diabetes, hypertension, or lipid disorders.

[20] As measured by the Comprehensive Severity Index (CSI). Higher scores indicate more severity.

[21] FIM = Functional Independence Measure.

[22] Length of Stay

Figure 1
Discharge Motor FIM Gains among
Unilateral Knee Replacement Patients with Select Combinations of Comorbidities in SNFs and IRFs by Annual Volume of Joint Replacement Patients



Source: NRH Center for Post-acute Studies and ICOR, JOINTS Study 2006-07.

Note: These findings are not risk or case-mix adjusted. Upon admission to a post-acute facility, IRF patients are more functionally and medically impaired than SNF patients while SNF patients are somewhat older than IRF patients.

Comorbidities Case Study I

A 39 year old male patient was admitted with a primary diagnosis of Guillain-Barre but qualified for the 75% rule under the Neurological Disorders category due to quadriparesis, peripheral neuropathy and dependent functional status.

He was initially ill with a viral infection that was complicated by pneumonia. Unfortunately he went on to develop Guillain-Barre Syndrome-Miller Fisher Variant. His comorbidities include neuropathic quadriplegia, bulbar weakness resulting in facial diplegia, dysphagia, hypophonia, and dyspnea. He had autonomic neuropathy and neuropathic pain. This gentleman had a previous MI.

Initially this patient was unable to move, breathe, swallow, talk, or manage his bowel and bladder function. After he was medically stabilized he was placed in a transitional care unit in his rural community. His family was trained in his care and he returned home in a dependent state. His teenage children help care for him while his wife worked.

He eventually ended up in our rehabilitation unit with the full support of his insurance company. He had four different admissions to our facility because of the significant improvements he made each time he was here. The skilled nursing facility and outpatient office in his local community were unable to meet his specific needs. The patient tried both types of facilities without success. His insurance company recognized this and has totally approved all admissions and all equipment needed by this patient.

He required medical management of his pain and depression. He required rehabilitation nursing for prevention of skin ulcers, for assistance and instruction in bowel and bladder management and for patient and family education in all his medical needs. He required extensive physical and occupational therapy in order to prevent contractures, promote strengthening, adapt equipment, obtain the appropriate equipment, and to train the family and patient in activities of daily living and functional mobility. The patient required the extensive skills, experience, team approach, and time that only an inpatient rehabilitation facility can provide.

The patient was essentially dependent in all areas when he first arrived at our facility, with the exception of speech and swallowing which were normal. The patient's initial stay involved instruction in the use an electric wheelchair with modifications that allowed patient to have independent mobility. Adaptive equipment was provided by occupational therapy including a ball-bearing feeding device that allowed for minimal assistance with feeding versus being dependent. The patient was initially dependent with all transfers and progressed to minimal assistance with level surface transfers. The patient and his wife managed his bowel and bladder care keeping him continent, but he was dependent on his wife for this. The patient was discharged home requiring less care. The patient initially had more return in his lower extremities than his upper extremities forcing him to need continued assistance with all activities of daily living.

The patient over the course of the next several months was admitted to our facility 3 more times as he continued to make significant improvement. On his last visit he was independent with all activities of daily living with the use of adaptive equipment, with the exception of needing stand by assistance with bathing. He was independent with all transfers using bilateral braces. He continues to be independent with the use of an electric wheelchair for community mobility. He transfers independently into his truck and drives independently without any modifications to his vehicle. He can ambulate independently on level surfaces with braces and a platform walker. He progresses from long leg braces to short leg braces. He can go up and down a flight of stairs with bilateral rails and stand by assistance. He is independent with his bowel and bladder management. He has returned to work as a dispatcher for a trucking business.

Comorbidities Case Study II

Ms. S. is a 58 year-old single female who lives with her significant other in a two-story home. She has a history of Multiple Sclerosis diagnosed in 1994 and was admitted to our facility following recent cardiac bypass surgery. She was not working prior to her admission due to her MS, however, she was independent in all aspects of self-care and she was able to maintain her home, independent in food preparation and needed minimum assist for household maintenance. She enjoyed going to the movies as well as spending time outdoors fishing.

Ms. S. developed chest pain while shoveling snow. She was admitted to an acute care facility where she underwent coronary artery bypass graft times two. Upon admission to our rehabilitation hospital, she stated that she had an exacerbation of her Multiple Sclerosis, due to her recent surgery, resulting in decreased functioning in ambulation and self-care. She presented with a neurogenic bladder and a Foley catheter in place. Ms. S. needed a moderate amount of assistance to dress herself and transfer from her bed to a chair. She was unable to ambulate upon admission due to increased weakness; she had poor to fair muscle strength in her right leg and generally poor muscle strength in her left leg. Her pain level due to her sternal wound was 8/10. Upon admission, her liver function tests were abnormal and rising, necessitating medication adjustment to avoid liver damage. Ms. S. also received telemetry services during her stay to assess her cardiac status.

During her rehab hospitalization, she was seen by our neurologist, who in consult with her cardiothoracic surgeon, prescribed a short intravenous course of solumedrol to treat her MS exacerbation. Her Foley catheter was removed and since she was unable to restart her Ditropan (prescribed for bladder function) due to her elevated liver enzymes, she was started on intermittent catheterizations after being seen in consult with urology. It was noted that she had a urinary tract infection, which was treated with antibiotics. She required bladder scans to ensure complete bladder emptying and frequent blood work to assess her liver function.

Medically she was also followed by psychiatry as her Paxil needed to be held due to her elevated liver enzymes. Ms. S. also received respiratory therapy services, including oximetry checks, nasal oxygen and nebulizer treatments. She was followed by GI due to her abnormal liver function.

From a rehab standpoint, the patient received intensive therapy services. Physical and occupational therapy focused on restoring her functional capabilities, including self-care, ambulation and cardiac rehabilitation. Ms. S. received speech therapy services for intermittent, rare swallowing difficulties and moderate communication disorder after she had an outside trip for a CT of her head since these symptoms were new.

This patient was medically and physically complex. Ms. S. required almost daily physician intervention as well as specialty consultant intervention. She received intensive physical, occupational and speech therapy services. Ms. S. received skilled rehabilitation nursing services, including bladder retraining and wound care. The intensity of the services required

necessitated Ms. S. receive this care as an impatient in an acute rehabilitation hospital - she was not appropriate for any lesser level of care.

Ms. S. was able to return home with home care services at a supervised to modified independent level of care. Had this cardiac patient not been admitted to acute rehab, if her co morbidity were not compliant, she would have been left in a SNF. She would not have received the intensive medical and therapy services she needed to ensure a timely discharge home. Her length of stay was 30 days with the approval of the medical director of her private insurance company.

ATTACHMENT 4

Utilization Trends in Inpatient Rehabilitation: Update Through Q II 2006

September 2006
Revised Edition

THE MORAN COMPANY

Utilization Trends in Inpatient Rehabilitation: Update Through Q II 2006—*Revised Edition*[1]

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 CY 2006.

- Extended our prior analysis by acquiring data from both of the largest data benchmarking services used by IRFs (UDS_{MR} and eRehabData®), which together represent data on more than 75% of all Medicare IRF discharges.

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

- Immediately following implementation of the new enforcement regime in 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 2006—the final quarter in the IRF Program Year 2006—Medicare caseload in our sample continued to decline. Medicare discharges in our sample fell to 70,762, the lowest level observed in our 18 quarters of data.

- In program year 2006, caseload in our sample was 292,677, which is down 12.0% from PY 2005, and by 18.4% relative to PY 2004. Since our sample comprises approximately 75% of all Medicare IRF discharges, we estimate that total Medicare caseload declined by 88,053 cases over this two-year span.

- As has been the case since 2004, this caseload decline is highly concentrated in about one third of the Rehabilitation Impairment Code categories, particularly those areas that CMS has indicated will be subject to the greatest degree of scrutiny in determining compliance with the "75% Rule." In areas, such as

[1] This document has been revised to correct a programming error that was discovered during a review of an earlier draft.

neurological cases, which CMS lists as qualifying conditions, caseload is growing steadily.

- 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 is obviously the direct consequence of the policy.

Utilization Trends in Inpatient Rehabilitation: Update Through Q II 2006—*Revised Edition*[2]

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).[3] 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.[4]

The controversy over this policy, in part, results from disparities in estimates of its impact. In its 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 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_{MR} data service.[5] In subsequent reports, we expanded the analysis

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[2] This document has been revised to correct a programming error that was discovered during a review of an earlier draft.

[3] *Federal Register*, Vol. 69, No. 89 (Friday, May 7, 2004), pp. 25752-25776.

[4] 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).

[5] The Moran Company, *Estimating the Impact of Enforcement of the "75% Rule" on Inpatient Rehabilitation Services Volume.* (Arlington, VA, June 2005).

to include additional data from eRehabData®, and updated the analysis employing data through the first quarter of 2006.[6]

In August, 2006, 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 2006.

This report presents the findings of that analysis.

Data Employed in the Analysis

We requested and received eighteen 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 eighteen quarters ending with the second quarter of 2006 — i.e., so-called "same store" tabulations. Because rehabilitation hospitals use only one data service at a time, the provider lists underlying these samples represent unduplicated counts of discharges.[7] In the four quarters of program year 2006 (ending Q II :06), these two sources reported "same store" discharges of 292,677 Medicare beneficiaries, and 435,617 cases from all payers. Collectively, this cohort represents approximately 75% of all Medicare IRF discharges.

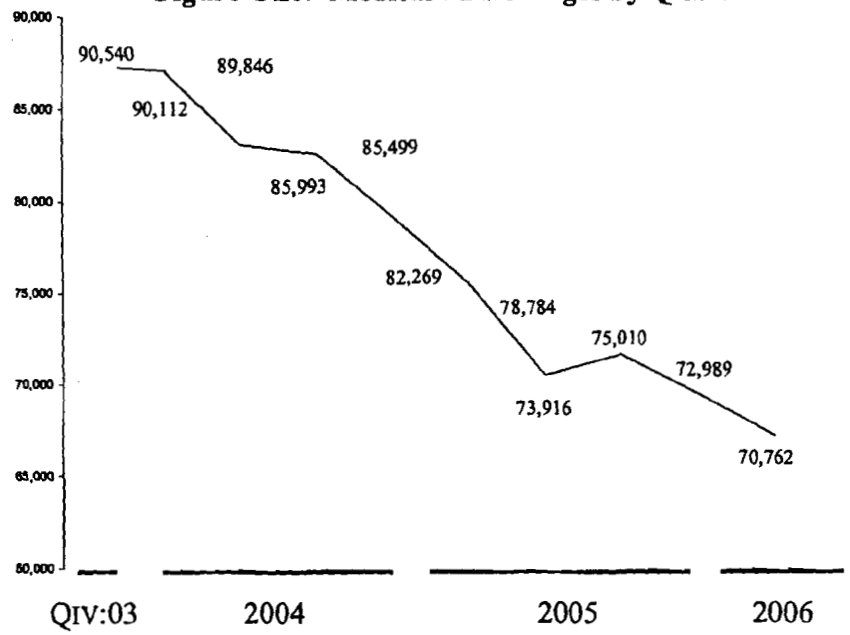
Overall Volume Trends

Figure one depicts the steady downward trend of IRF caseloads in Medicare since enforcement of the 75% Rule began.

[6] 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 III 2005.* (Arlington, VA, November 2005); *Utilization Trends in Inpatient Rehabilitation: Update Through Q IV 2005* (Arlington, VA, April 2006); *Utilization Trends in Inpatient Rehabilitation: Update Through Q I 2006* (Arlington, VA, June 2006).

[7] Providers who changed data services during this period are, therefore, excluded from this analysis.

Figure One: Medicare Discharges by Quarter

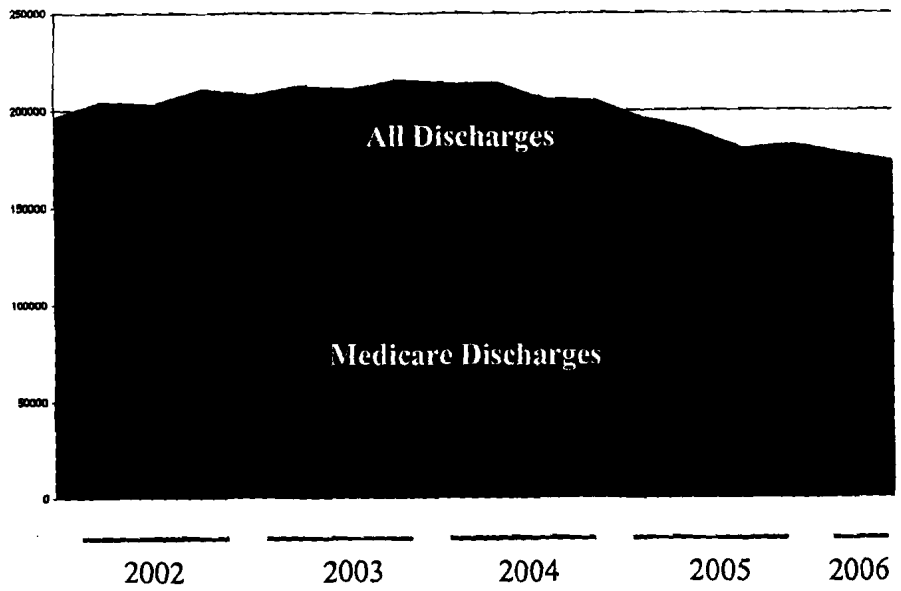


As the figure shows, immediately following implementation of the new enforcement regime in the Final Rule of May, 2004, the prior growth trend in IRF discharges ended, and volume declined steadily over all but one of the ensuing quarters.

In the second quarter of calendar year 2006—the final quarter in the IRF Program Year 2006—Medicare caseload in our sample continued to decline. Medicare discharges in our sample fell to 70,762, the lowest level observed in our 18 quarters of data.

In program year 2006, caseload in our sample was 292,677, which is down 12.0% from PY 2005, and by 18.4% relative to PY 2004. Since our sample comprises approximately 75% of all Medicare IRF discharges, we estimate that total Medicare caseload declined by 88,053 cases over this two-year span.

Figure Two: IRF Discharges by Quarter



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 more than 64% of the total caseload volume in the data we analyzed for the four quarters of program year 2006.

Figure Three: Medicare Discharges by IRF PPS Program Year

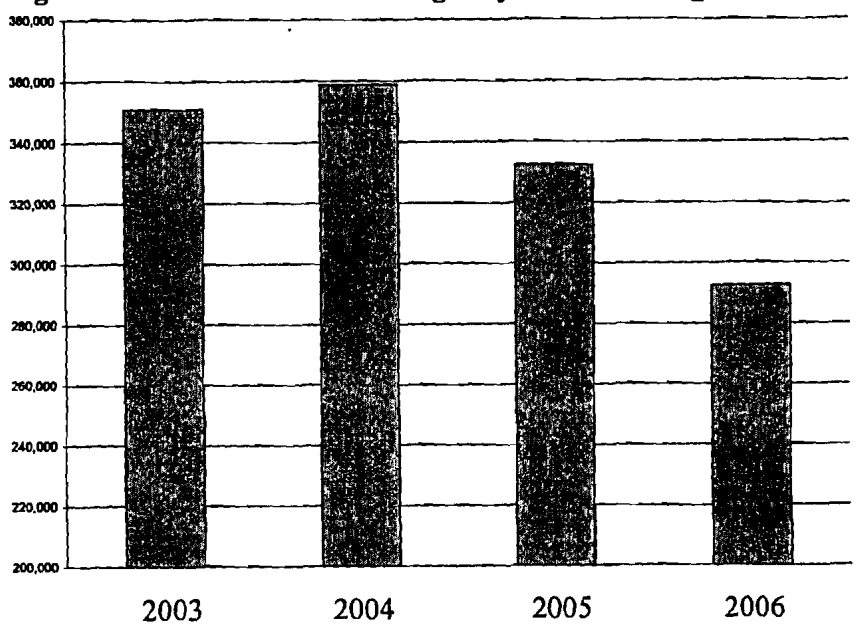


Figure Three presents a comparison of Medicare IRF discharges on a program year basis. From a peak of 358,717 cases in program year 2004, the total number of Medicare IRF cases has fallen to 292,677 in program year 2006. In the second quarter of 2006, Medicare discharges in our sample fell to 70,762, the lowest level observed in our 18 quarters of data.

Trends by Diagnostic Type

The UDS_{MR} 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. The table shows a comparison of the quarterly volume in the second quarter of 2004, when the CMS final rule was published, and the second quarter of 2006, the last quarter for which we have data.

Table One: Volume Change by Rehabilitation Impairment Category
QII 2004 vs. QII 2006

Category	Description	QII 2004	QII 2006	Change	% Change
08	Lower Extremity Joint Replacement	22,257	13,218	-9,039	-40.6%
20	Miscellaneous	11,225	7,078	-4,147	-36.9%
14	Cardiac	5,242	3,060	-2,182	-41.6%
09	Other Orthopedic	4,965	3,818	-1,147	-23.1%
15	Pulmonary	1,817	953	-864	-47.6%
12	Osteoarthritis	1,331	468	-863	-64.8%
16	Pain Syndrome	1,693	1,027	-666	-39.3%
05	Spinal Cord Dysfunction, Non-Traumatic	3,268	2,789	-479	-14.7%
13	Rheumatoid and Other Arthritis	789	431	-358	-45.4%
07	Lower Extremity Fracture	10,873	10,585	-288	-2.6%
10	Amputation, Lower Extremity	2,444	2,184	-260	-10.6%
17	MMT without Brain/Spinal Cord Injury	917	803	-114	-12.4%
11	Amputation, Non-Lower Extremity	228	115	-113	-49.6%
04	Spinal Cord Dysfunction, Traumatic	533	484	-49	-9.2%
18	MMT with Brain/Spinal Cord Injury	215	182	-33	-15.3%
19	Guillain-Barre	125	127	2	1.6%
21	Burns	69	74	5	7.2%
01	Stroke	14,246	14,418	172	1.2%
02	Brain Dysfunction, Traumatic	1,441	1,660	219	15.2%
06	Neurological Conditions	4,037	4,567	530	13.1%
03	Brain Dysfunction, Non-Traumatic	2,131	2,721	590	27.7%
		89,846	70,762	-19,084	-21.2%

Moran Company Analysis of Data Furnished by UDS_{MR} and eRehabData®

Overall, volume declined by 19,084 cases, or 21.2%, over this period. As has been the case since 2004, this caseload decline is highly concentrated in about one third of the Rehabilitation Impairment Code categories, particularly those areas that CMS has indicated will be subject to the greatest degree of scrutiny in determining compliance

with the "75% Rule." In areas, such as neurological cases, that meet the diagnostic criteria CMS has established, caseload is growing steadily.

Conclusion

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

- Immediately following implementation of the new enforcement regime in 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 2006—the final quarter in the IRF Program Year 2006—Medicare caseload in our sample continued to decline. Medicare discharges in our sample fell to 70,762, the lowest level observed in our 18 quarters of data.

- In program year 2006, caseload in our sample was 292,677, which is down 12.0% from PY 2005, and by 18.4% relative to PY 2004. Since our sample comprises approximately 75% of all Medicare IRF discharges, we estimate that total Medicare caseload declined by 88,053 cases over this two-year span.

- As has been the case since 2004, this caseload decline is highly concentrated in about one third of the Rehabilitation Impairment Code categories, particularly those areas that CMS has indicated will be subject to the greatest degree of scrutiny in determining compliance with the "75% Rule." In areas, such as neurological cases, which CMS lists as qualifying conditions, caseload is growing steadily.

- 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 is obviously the direct consequence of the policy.

THE MORAN COMPANY

Inpatient Rehabilitation Discharges by Rehabilitation Impairment Category (RIC)

Discharges, Medicare

	2002				2003				2004				2005				2006	
	Q1 N	Q2 N	Q3 N	Q4 N	Q1 N	Q2 N	Q3 N	Q4 N	Q1 N	Q2 N	Q3 N	Q4 N	Q1 N	Q2 N	Q3 N	Q4 N	Q1 N	Q2 N
01 Stroke	14,986	15,349	14,971	14,779	14,630	14,826	14,464	14,504	14,582	14,246	14,221	14,286	14,804	15,025	14,187	14,347	14,687	14,418
02 Brain Dysfunction, Traumatic	1,119	1,202	1,146	1,230	1,219	1,238	1,298	1,330	1,374	1,441	1,445	1,653	1,603	1,691	1,631	1,761	1,731	1,660
03 Brain Dysfunction, Non-Traumatic	1,779	1,818	1,840	1,881	1,883	1,955	1,887	1,991	2,105	2,131	2,238	2,221	2,478	2,617	2,552	2,683	2,708	2,721
04 Spinal Cord Dysfunction, Traumatic	490	531	527	499	451	514	526	490	498	533	555	552	499	546	542	559	546	484
05 Spinal Cord Dysfunction, Non-Traumatic	2,788	3,108	2,981	3,105	3,036	3,179	3,374	3,399	3,006	3,268	3,320	3,242	3,034	3,137	2,982	2,970	2,829	2,789
06 Neurological Conditions	3,563	3,647	3,523	3,636	3,511	3,705	3,610	3,764	3,896	4,037	4,114	4,291	4,495	4,400	4,472	4,365	4,490	4,567
07 Lower Extremity Fracture	10,007	10,021	10,150	10,536	10,836	10,837	10,690	11,275	11,252	10,873	10,749	11,257	11,222	11,090	10,900	11,566	11,173	10,585
08 Lower Extremity Joint Replacement	18,886	20,210	20,177	21,419	20,058	21,571	21,313	22,634	20,761	22,257	20,867	21,003	18,314	17,152	15,603	15,483	13,759	13,218
09 Other Orthopedic	3,980	4,169	4,286	4,772	4,738	4,770	4,802	4,937	4,914	4,995	4,790	4,817	4,502	4,134	3,868	4,202	3,818	3,818
10 Amputation, Lower Extremity	2,357	2,376	2,424	2,170	2,251	2,345	2,335	2,227	2,281	2,444	2,367	2,194	2,279	2,339	2,391	2,119	2,105	2,184
11 Amputation, Non-Lower Extremity	231	291	257	194	227	255	272	242	237	228	189	165	160	139	112	84	123	115
12 Osteoarthritis	1,713	1,599	1,552	1,548	1,502	1,569	1,530	1,361	1,246	1,331	1,024	778	657	658	549	517	519	468
13 Rheumatoid and Other Arthritis	796	865	822	896	816	895	867	934	901	789	661	592	551	523	516	477	462	431
14 Cardiac	5,065	5,410	5,046	5,383	5,426	5,502	5,131	5,330	5,409	5,242	4,652	4,548	4,092	3,560	3,096	3,104	3,179	3,060
15 Pulmonary	2,681	2,160	1,598	1,711	2,074	1,942	1,527	1,693	2,346	1,817	1,293	1,180	1,726	1,287	854	915	1,325	953
16 Pain Syndrome	1,814	1,977	1,892	2,069	1,932	1,962	1,692	1,796	1,759	1,693	1,721	1,611	1,269	1,290	1,175	1,135	960	1,027
17 MMT without Brain/Spinal Cord Injury	876	986	978	1,072	977	984	1,003	986	936	917	867	848	754	733	815	925	770	803
18 MMT with Brain/Spinal Cord Injury	196	184	200	233	208	230	206	224	226	215	218	255	221	208	206	242	203	182
19 Guillain-Barre	131	138	113	102	152	115	119	131	132	125	115	105	126	133	130	105	123	127
20 Miscellaneous	10,298	10,357	10,709	11,219	11,782	11,222	11,118	11,226	12,189	11,225	10,526	9,867	9,402	8,039	7,296	7,361	7,393	7,078
21 Burns	63	72	44	49	69	60	53	86	82	69	63	54	81	85	59	90	86	74
Total	83,817	86,470	85,236	88,503	87,738	89,474	88,219	90,540	90,112	89,846	85,993	85,499	82,269	78,784	73,916	75,010	72,989	70,782

Moran Company Analysis of Data Furnished by UDS$_{MR}$ and eRehabData ®

THE MORAN COMPANY

Inpatient Rehabilitation Discharges by Rehabilitation Impairment Category (RIC)

Discharges, All Payers

	2002				2003				2004				2005				2006	
	Q1 N	Q2 N	Q3 N	Q4 N	Q1 N	Q2 N	Q3 N	Q4 N	Q1 N	Q2 N	Q3 N	Q4 N	Q1 N	Q2 N	Q3 N	Q4 N	Q1 N	Q2 N
01 Stroke	21,603	22,357	21,861	21,837	21,571	21,904	21,491	21,614	21,701	21,456	21,481	21,653	22,435	22,596	21,735	22,174	22,825	22,656
02 Brain Dysfunction, Traumatic	2,882	3,112	3,245	3,320	2,995	3,175	3,484	3,454	3,190	3,506	3,892	3,966	3,664	3,860	4,313	4,267	4,060	3,995
03 Brain Dysfunction, Non-Traumatic	3,352	3,571	3,512	3,611	3,598	3,718	3,664	3,802	4,014	4,057	4,229	4,190	4,482	4,918	4,735	4,871	5,000	4,986
04 Spinal Cord Dysfunction, Traumatic	1,461	1,587	1,770	1,755	1,511	1,602	1,811	1,769	1,556	1,629	1,858	1,894	1,611	1,727	1,953	1,914	1,791	1,700
05 Spinal Cord Dysfunction, Non-Traumatic	4,489	4,821	4,663	4,941	4,727	5,024	5,151	5,270	4,785	5,075	5,203	5,109	4,814	4,952	4,836	4,841	4,678	4,643
06 Neurological Conditions	4,918	5,038	4,996	5,028	4,935	5,158	5,388	5,344	5,465	5,673	5,664	5,776	6,132	6,101	6,170	6,041	6,373	6,517
07 Lower Extremity Fracture	11,868	11,959	12,230	12,527	13,069	12,762	12,849	13,485	13,471	13,093	12,947	13,614	13,523	13,370	13,116	13,932	13,561	12,983
08 Lower Extremity Joint Replacement	26,336	28,606	28,400	30,575	28,513	30,749	30,156	31,991	29,285	31,264	28,701	29,278	25,444	24,199	21,672	21,876	19,679	19,122
09 Other Orthopedic	5,209	5,606	5,749	6,347	6,289	6,334	6,374	6,488	6,513	6,552	6,290	6,443	6,065	5,591	5,288	5,685	5,211	5,323
10 Amputation, Lower Extremity	3,255	3,436	3,465	3,171	3,313	3,388	3,442	3,299	3,368	3,504	3,411	3,379	3,340	3,495	3,606	3,235	3,289	3,469
11 Amputation, Non-Lower Extremity	309	413	348	274	325	351	378	348	342	314	266	234	213	208	176	138	175	176
12 Osteoarthritis	1,937	1,825	1,791	1,795	1,731	1,827	1,728	1,559	1,413	1,530	1,171	858	734	745	616	581	574	516
13 Rheumatoid and Other Arthritis	962	1,039	1,007	1,087	984	1,086	1,077	1,139	1,108	1,010	854	776	713	682	694	603	592	588
14 Cardiac	5,842	6,169	5,774	6,175	6,255	6,287	5,880	6,110	8,187	6,001	5,360	5,230	4,685	4,141	3,616	3,627	3,738	3,606
15 Pulmonary	3,171	2,625	1,923	2,078	2,497	2,358	1,821	2,022	2,795	2,174	1,542	1,426	2,071	1,580	1,042	1,103	1,601	1,173
16 Pain Syndrome	2,364	2,814	2,543	2,781	2,593	2,626	2,503	2,387	2,290	2,241	2,287	2,094	1,633	1,632	1,505	1,453	1,261	1,349
17 MMT without Brain/Spinal Cord Injury	2,170	2,542	2,842	2,812	2,623	2,683	2,941	2,797	2,530	2,899	2,661	2,595	2,218	2,356	2,702	2,750	2,361	2,468
18 MMT with Brain/Spinal Cord Injury	1,139	1,365	1,559	1,626	1,297	1,461	1,696	1,638	1,441	1,556	1,777	1,798	1,302	1,576	1,736	1,701	1,479	1,551
19 Guillain-Barre	402	372	361	366	410	359	376	392	407	377	344	320	398	433	396	379	400	413
20 Miscellaneous	12,758	13,077	13,393	14,056	14,677	14,078	13,788	13,934	15,083	13,994	13,062	12,378	11,760	10,345	9,392	9,512	9,510	9,199
21 Burns	191	230	204	207	218	228	217	235	248	261	269	223	223	282	267	261	229	287
Total	116,618	122,362	121,636	126,347	124,129	127,156	126,215	129,075	127,192	127,968	123,269	123,234	117,460	114,789	109,566	110,944	108,387	106,720

Moran Company Analysis of Data Furnished by UDS$_{MR}$ and eRehabData®

Utilization Trends in Inpatient Rehabilitation: Update Through Q I: 2007

May 2007

THE MORAN COMPANY

Utilization Trends in Inpatient Rehabilitation: Update through Q I: 2007

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 first quarter of 2007.
- Extended our prior analysis by acquiring data from both of the largest data benchmarking services used by IRFs (UDS_{MR} 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 first quarter of calendar year 2007, Medicare caseload in our sample continued to decline. Medicare discharges in our sample fell to 62,623, the lowest level observed in our 21 quarters of data.
- In the four quarters ending Q I: 2007, Medicare volume totaled 255,006, down 23.5% from the 333,559 discharges observed in the comparable period ending Q I: 2004.
- As has been the case since 2004, this caseload decline is highly 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." In areas, such as neurological cases, which CMS lists as qualifying conditions, caseload is growing steadily.
- 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 is obviously the direct consequence of the policy.

Utilization Trends in Inpatient Rehabilitation: Update Through Q I: 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).[1] 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.[2]

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_{MR} data service.[3] 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.[4]

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[1] *Federal Register*, Vol. 69, No. 89 (Friday, May 7, 2004), pp. 25752-25776.

[2] 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).

[3] The Moran Company, *Estimating the Impact of Enforcement of the "75% Rule" on Inpatient Rehabilitation Services Volume.* (Arlington, VA, June 2005).

[4] 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 III 2005.* (Arlington, VA, November 2005); *Utilization Trends in*

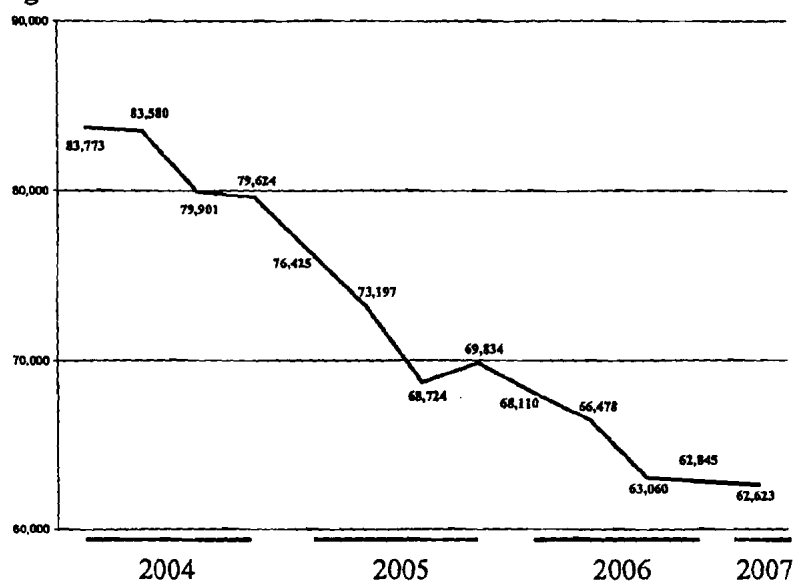
In May, 2007, we were engaged jointly by the Federation, the American Hospital Association, and the American Medical Rehabilitation Providers Association to update our analysis employing data on utilization through the first calendar quarter of 2007.

This report presents the findings of that analysis.

Data Employed in the Analysis

We requested and received 21 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 first quarter of 2007 — i.e., so-called "same store" tabulations.[5] Because rehabilitation hospitals use only one data service at a time, the provider lists underlying these samples represent unduplicated counts of discharges.[6] 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.[7]

Figure One



Inpatient Rehabilitation: Update Through Q IV 2005 (Arlington, VA, April 2006); *Utilization Trends in Inpatient Rehabilitation: Update Through Q I 2006* (Arlington, VA, June 2006); *Utilization Trends in Inpatient Rehabilitation: Update Through Q II 2006* (Arlington, VA, August 2006).

[5] 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,.

[6] 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 20 quarters.

[7] In comparison to prior analyses, the data were drawn from a data set that was not fully complete. As a result, the discharge totals reported here are approximately 6% below the levels reported in prior reports for comparable periods.

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 first quarter of calendar year 2007, Medicare caseload in our sample continued to decline. Medicare discharges in our sample fell to 62,623, the lowest level observed in our 21 quarters of data. In the four quarters ending Q I: 2007, Medicare volume totaled 255,006, down 23.5% from the 333,559 discharges observed in the comparable period ending Q I: 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 of calendar year 2006.

Figure Two

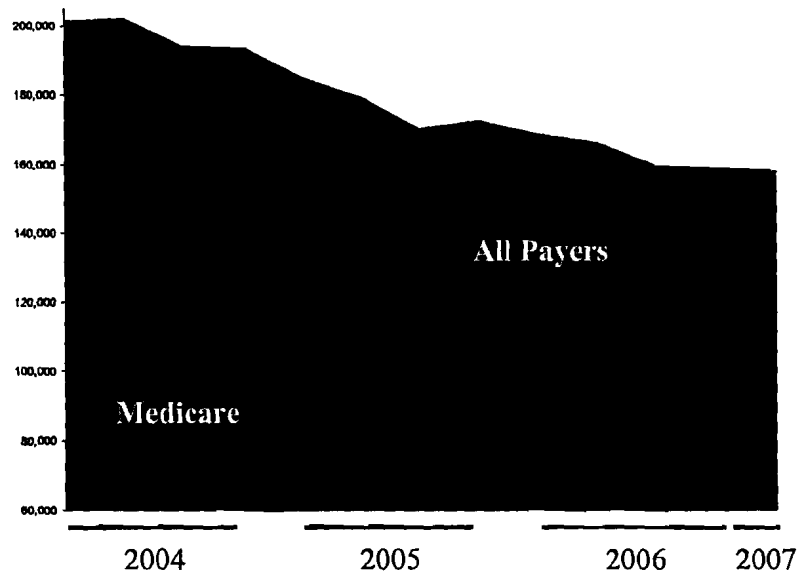
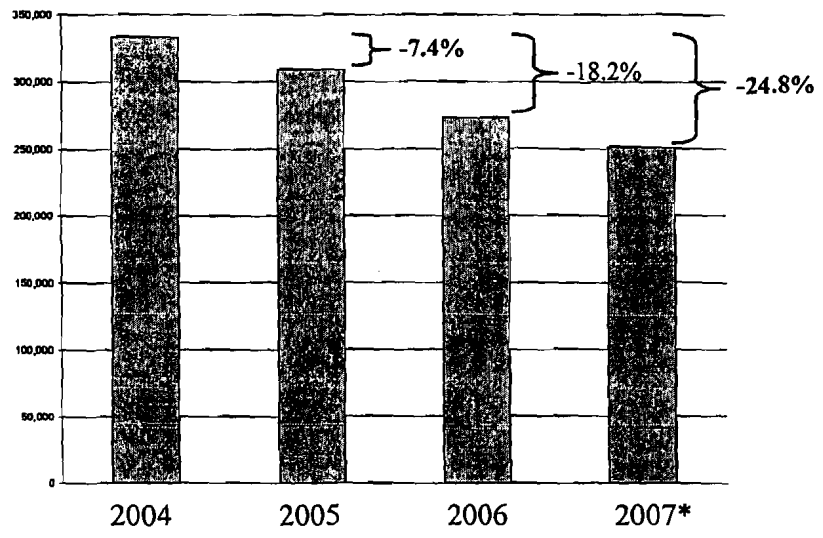


Figure Three presents a comparison of Medicare IRF discharges on a program year basis. We obtained an estimate for 2007 by assuming that volume in Q II: 2007 would equal that observed in the first quarter. As indicated in the figure, our estimate of PY 2007 discharges is 24.8% lower than the level observed in these data for PY 2004, the first program year.

Figure Three



Trends by Diagnostic Type

The UDS_{MR} 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 first quarter of 2007 to the same quarter in 2004, the last quarter before implementation of the 75% rule policy.

Table One

Volume Change by Rehabilitation Impairment Category
Q I: 2007 versus Q I: 2004

RIC		2004 Q1	2007 Q1	Change
8	Replacement of LE joint	19,474	9,643	-9,831
20	Miscellaneous	11,253	6,994	-4,259
14	Cardiac	5,028	2,835	-2,193
15	Pulmonary	2,278	1,089	-1,189
9	Other orthopedic	4,628	3,565	-1,063
16	Pain Syndrome	1,619	829	-790
12	Osteoarthritis	1,141	363	-778
1	Stroke	13,443	12,798	-645
7	Fracture of LE	10,411	9,793	-618
13	Rheumatoid, other arthritis	811	342	-469
5	Nontraumatic spinal cord	2,757	2,366	-391
10	Amputation, lower extremity	2,114	1,884	-230
17	Major multiple trauma, no brain injury or spinal cord injur	866	714	-152
11	Amputation, other	213	85	-128
18	Major multiple trauma, with brain or spinal cord injury	206	188	-18
19	Guillain Barre	125	128	3
21	Burn	77	81	4
4	Traumatic spinal cord	454	462	8
2	Traumatic brain injury	1,269	1,636	367
6	Neurological	3,646	4,239	593
3	Nontraumatic brain injury	1,960	2,589	629
Total		83,773	62,623	-21,150

Moran Company Analysis of Data Furnished by UDS$_{MR}$ and eRehabData®

Overall, volume declined by 21,150 cases, or by 25.3%, over this period. As has been the case since 2004, this caseload decline is highly 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 first quarter of 2007, relative to the first quarter of 2004. In areas, such as neurological cases, that meet the diagnostic criteria CMS has established, caseload is growing steadily.

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 first quarter of calendar year 2007, Medicare caseload in our sample continued to decline. Medicare discharges in our sample fell to 62,623, the lowest level observed in our 21 quarters of data.

- In the four quarters ending Q I: 2007, Medicare volume totaled 255,006, down 23.5% from the 333,559 discharges observed in the comparable period ending Q I: 2004.

- As has been the case since 2004, this caseload decline is highly 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." In areas, such as neurological cases, which CMS lists as qualifying conditions, caseload is growing steadily.

- 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 is obviously the direct consequence of the policy.

THE MORAN COMPANY

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
1	Stroke	19,842	20,479	19,794	19,933	19,809	20,035	19,712	19,767	19,917	19,645	19,724	19,656	20,535	20,667	19,892	20,313	20,966	20,979	20,092	20,277	20,642
2	Traumatic brain injury	2,610	2,839	2,936	3,007	2,727	2,901	3,161	3,143	2,888	3,158	3,571	3,647	3,365	3,521	3,968	3,860	3,781	3,711	3,991	3,853	3,573
3	Nontraumatic brain injury	3,089	3,300	3,254	3,337	3,323	3,456	3,395	3,526	3,670	3,750	3,905	3,906	4,157	4,527	4,374	4,492	4,641	4,854	4,881	4,680	4,895
4	Traumatic spinal cord	1,320	1,442	1,637	1,637	1,402	1,477	1,678	1,607	1,422	1,474	1,725	1,717	1,475	1,600	1,784	1,750	1,834	1,592	1,846	1,827	1,474
5	Nontraumatic spinal cord	4,122	4,359	4,283	4,536	4,330	4,629	4,763	4,835	4,371	4,676	4,788	4,670	4,444	4,537	4,431	4,450	4,306	4,285	4,184	4,253	4,015
6	Neurological	4,596	4,662	4,608	4,686	4,574	4,799	5,023	4,994	5,098	5,296	5,307	5,427	5,693	5,856	5,874	5,808	5,900	6,048	5,794	5,846	6,021
7	Fracture of LE	10,981	11,050	11,271	11,482	12,038	11,823	11,770	12,428	12,426	11,990	11,919	12,533	12,457	12,267	12,152	12,854	12,593	12,134	11,588	12,144	12,214
8	Replacement of LE joint	24,582	26,792	26,736	26,726	26,744	26,916	26,327	30,018	27,304	29,470	26,892	27,579	23,813	22,669	20,266	20,569	18,463	18,032	18,575	15,801	14,538
9	Other orthopedic	4,875	5,268	5,361	5,943	5,803	5,974	6,018	6,110	6,130	6,192	5,934	6,079	5,666	5,284	4,985	5,401	4,922	5,060	5,115	5,145	5,010
10	Amputation, lower extremity	3,011	3,176	3,197	2,897	3,044	3,124	3,201	3,062	3,117	3,242	3,140	3,125	3,091	3,228	3,335	3,014	3,054	3,232	3,147	2,943	2,968
11	Amputation, other	276	382	321	253	306	326	348	317	307	279	239	210	198	189	161	133	151	153	144	104	133
12	Osteoarthritis	1,766	1,618	1,598	1,636	1,547	1,607	1,513	1,376	1,300	1,405	1,027	779	867	707	574	544	549	488	496	401	406
13	Rheumatoid, other arthritis	891	962	933	958	871	960	937	1,001	995	898	766	701	660	639	849	575	552	545	536	500	472
14	Cardiac	5,393	5,742	5,435	5,730	5,848	5,913	5,510	5,657	5,727	5,543	4,947	4,772	4,343	3,854	3,349	3,354	3,450	3,406	3,048	3,314	3,398
15	Pulmonary	3,077	2,547	1,890	2,025	2,415	2,325	1,788	1,979	2,714	2,083	1,503	1,375	2,008	1,545	1,022	1,084	1,559	1,159	957	1,043	1,384
16	Pain Syndrome	2,184	2,449	2,339	2,558	2,375	2,416	2,273	2,212	2,112	2,091	2,096	1,862	1,499	1,496	1,381	1,352	1,172	1,273	1,250	1,100	1,082
17	Major multiple trauma, no brain injury or spinal cord injury	2,008	2,325	2,832	2,585	2,389	2,448	2,705	2,610	2,342	2,467	2,436	2,404	2,040	2,172	2,515	2,548	2,199	2,318	2,473	2,431	2,189
18	Major multiple trauma, with brain or spinal cord injury	1,060	1,263	1,457	1,520	1,223	1,369	1,600	1,516	1,312	1,448	1,528	1,569	1,207	1,450	1,596	1,571	1,378	1,458	1,501	1,513	1,298
19	Guillain Barre	375	350	337	344	384	329	360	365	379	348	323	310	372	388	367	343	367	382	367	411	408
20	Miscellaneous	11,711	12,030	12,261	12,787	13,457	12,909	12,612	12,802	13,881	12,837	11,919	11,340	10,776	9,531	8,686	8,618	8,782	8,821	8,423	8,544	9,220
21	Burn	183	223	200	197	213	213	208	218	237	252	258	212	207	257	248	242	221	275	238	215	210
Total		107,956	113,258	112,480	116,759	114,822	117,951	118,902	119,541	117,849	118,542	114,047	114,273	105,673	106,184	101,419	102,875	100,620	99,803	96,448	96,345	95,530

Moran Company Analysis of Data Furnished by UDSMR 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
1	Stroke	13,884	14,198	13,732	13,640	13,536	13,696	13,401	13,429	13,443	13,186	13,211	13,239	13,841	13,848	13,084	13,224	13,835	13,450	12,820	12,759	12,798
2	Traumatic brain injury	1,026	1,103	1,055	1,127	1,131	1,135	1,213	1,241	1,269	1,328	1,331	1,547	1,487	1,551	1,516	1,817	1,620	1,545	1,610	1,590	1,636
3	Nontraumatic brain injury	1,657	1,708	1,720	1,754	1,744	1,833	1,761	1,854	1,980	1,983	2,089	2,101	2,317	2,428	2,361	2,505	2,533	2,528	2,504	2,504	2,589
4	Traumatic spinal cord	434	460	485	480	428	474	495	450	454	470	526	511	470	515	492	511	504	445	490	508	462
5	Nontraumatic spinal cord	2,566	2,621	2,747	2,870	2,797	2,980	3,149	3,133	2,757	3,030	3,055	2,956	2,820	2,884	2,729	2,713	2,610	2,579	2,528	2,449	2,366
6	Neurological	3,351	3,409	3,273	3,414	3,282	3,463	3,574	3,531	3,646	3,794	3,848	4,040	4,201	4,104	4,137	4,078	4,183	4,278	4,095	4,147	4,239
7	*Fracture of LE*	9,245	9,280	9,402	9,697	10,004	9,856	9,795	10,417	10,411	9,979	9,923	10,390	10,355	10,187	10,113	10,673	10,379	9,893	9,413	9,808	9,793
8	Replacement of LE joint	17,612	18,946	19,014	20,138	18,814	20,296	20,057	21,382	19,474	20,984	19,817	19,798	17,148	16,093	14,830	14,596	12,944	12,517	11,378	10,721	9,843
9	Other orthopedic	3,726	3,931	4,020	4,482	4,387	4,530	4,545	4,669	4,626	4,715	4,525	4,571	4,205	3,916	3,662	3,990	3,627	3,660	3,677	3,657	3,565
10	Amputation, lower extremity	2,185	2,202	2,251	1,983	2,089	2,162	2,177	2,080	2,114	2,258	2,180	2,034	2,117	2,186	2,226	1,979	1,972	2,050	1,993	1,841	1,884
11	Amputation, other	210	270	241	179	215	237	247	223	213	202	171	151	153	131	102	82	106	101	85	71	85
12	Osteoarthritis	1,556	1,425	1,391	1,423	1,361	1,402	1,351	1,218	1,141	1,217	901	709	602	623	513	483	500	448	452	350	363
13	Rheumatoid, other arthritis	740	799	759	783	719	804	756	623	611	702	584	541	516	493	482	460	431	398	398	379	342
14	Cardiac	4,693	5,047	4,752	5,015	5,060	5,181	4,813	4,962	5,028	4,840	4,269	4,150	3,816	3,322	2,677	2,670	2,951	2,697	2,554	2,766	2,835
15	Pulmonary	2,614	2,098	1,575	1,670	2,012	1,911	1,508	1,654	2,278	1,741	1,262	1,142	1,883	1,285	834	905	1,294	950	771	846	1,089
16	Pain Syndrome	1,660	1,836	1,733	1,908	1,773	1,812	1,717	1,884	1,819	1,588	1,590	1,503	1,188	1,193	1,077	1,061	885	965	948	826	829
17	Major multiple trauma, no brain injury or spinal cord injury	812	899	907	989	892	913	911	926	866	842	797	783	700	669	760	870	715	761	767	794	714
18	Major multiple trauma, with brain or spinal cord injury	164	174	182	217	197	220	195	212	206	208	203	229	209	195	185	227	188	189	187	192	188
19	Guillain Barre	123	133	109	85	143	104	111	127	125	119	108	103	114	123	129	94	120	118	128	112	128
20	Miscellaneous	9,446	9,559	9,844	10,218	10,803	10,304	10,220	10,333	11,253	10,330	9,831	9,073	8,825	7,408	6,739	6,815	6,632	6,658	6,423	6,489	6,994
21	Burn	61	69	43	47	66	58	52	59	77	66	60	53	78	61	56	63	63	72	63	58	61
Total		77,767	80,390	79,235	82,105	81,453	83,371	82,048	84,387	83,773	83,580	79,901	79,824	78,425	73,197	66,724	69,834	66,110	66,478	63,060	62,845	62,823

Moran Company Analysis of Data Furnished by UDSMR and eRehabData®

ATTACHMENT 5

Rehabilitation Hospitals and Units and Beds
(Percentage Change)
Corrected

YEAR	TYPE OF FACILITIES	NUMBER OF FACILITIES	% CHANGE	BEDS	% CHANGE
2002	Hospitals and Units	1295	N/A	42372	N/A
	Hospitals	214	N/A	13719	N/A
	Units	1081	N/A	27728	N/A
2004	Hospitals and Units	1359	4.94	42623	0.59
	Hospitals	218	1.87	13852	0.97
	Units	1141	5.55	28904	4.24
2006	Hospitals and Units	1227	-9.71	38388	-9.94
	Hospitals	217	-0.46	13676	-1.27
	Units	1010	-11.48	24712	-14.50
2007 (Jan)	Hospitals and Units	1217	-0.81	38389	0.00
	Hospitals	218	0.46	13961	2.08
	Units	1001	-0.89	24428	-1.15
2007 (May)	Hospitals and Units	1203	-1.15	38003	-1.01
	Hospitals	214	-1.83	13835	-0.90
	Units	989	-1.20	24168	-1.06

Are We Selecting the Right Patients for Stroke Rehabilitation in Nursing Homes?

Patrick K. Murray, MD, MS, Neal V. Dawson, MD, Charles L. Thomas, BS, Randall D. Cebul, MD

ABSTRACT. Murray PK, Dawson NV, Thomas CL, Cebul RD. Are we selecting the right patients for stroke rehabilitation in nursing homes? Arch Phys Med Rehabil 2005;86:876-80.

Objective: To examine the effect of stroke rehabilitation in the nursing home on community discharge rates and functional status among patients stratified by propensity to receive rehabilitation.

Design: Retrospective cohort.

Setting: Medicaid-certified nursing homes (N=945) in Ohio.

Participants: Patients with stroke (N=2013) admitted to an Ohio nursing home.

Intervention: Rehabilitation therapy services.

Main Outcome Measures: The propensity to receive rehabilitation, used to adjust for selection bias, was calculated for each patient by using a logistic regression model. Community discharge and change in functional status, measured by using a crosswalk to the FIM instrument, were determined 3 months after admission.

Results: By 3 months after admission, 36.9% of the patients were discharged to the community, 16.6% had died, and 46.5% remained in the nursing home. The overall effect of rehabilitation on community discharge (relative risk [RR]=1.58; 95% confidence interval [CI], 1.33–1.85) was not homogeneous across subgroups stratified by propensity to receive rehabilitation. Patients less likely to receive rehabilitation, as measured by a lower propensity score, had a significant benefit in terms of community discharge (RR=1.65; 95% CI, 1.35–1.97), but those more likely to receive services did not (RR=1.21; 95% CI, 0.87–1.56). Among long-term nursing home residents, rehabilitation services were not associated with improved functional status.

Conclusions: With respect to community discharge, patients who were less likely to receive rehabilitation therapy appear to receive greater benefit from rehabilitation services than those who were more likely to receive rehabilitation. This finding raises concerns about current selection practices for rehabilitation services. Research is needed to identify the patients most likely to benefit, especially in the present fiscally constrained reimbursement environment.

Key Words: Nursing homes; Outcome assessment (health care); Rehabilitation; Stroke.

IN THE PAST 2 DECADES, changes in financing for health care of the elderly have been associated with dramatic changes in the intensity and in the locations in which care is delivered. The introduction of the prospective payment system (PPS) for acute hospital care in 1984 created an incentive for reduced lengths of hospital stay that was accompanied by progressive declines in lengths of stay (LOSs) for virtually all medical and surgical conditions. Stroke care has not been immune to this incentive. Between 1984 and 1998, hospital LOSs for patients with acute stroke declined 51%, from an average of 12.4 days to 6.1 days, resulting in a dramatic increase in discharges to postacute care facilities for stroke rehabilitation.[1] Not surprisingly, this shift of poststroke care was associated with a redistribution of costs for stroke care to skilled nursing facilities (SNFs), where, until recently, there was an incentive to provide rehabilitative care that was accompanied by increasing use of these labor-intensive services.[2,3] The growth of these services was an important component of the rapid increase of Medicare expenditures for skilled nursing care through the 1990s, ultimately leading to the passage of the federal Balanced Budget Amendment (BBA) of 1997. A central feature of the BBA was the creation of a PPS for all postacute care, blunting the incentives for providing rehabilitative services in these settings.

In earlier work, we developed a model by using items collected as part of the nursing home admission assessment, which allowed us to describe, with good levels of discrimination, the likelihood or propensity of each patient to receive rehabilitation. By using this propensity measure to control for selection differences, we described the effectiveness of rehabilitation in improving community discharge among patients in SNFs.[4] The current investigation extends this work by determining whether the benefits observed in our earlier work were similar across subgroups of stroke patients stratified by their propensity to receive rehabilitative care and whether these benefits extended to changes in functional status among patients who remain in skilled nursing home settings after 3 months.

METHODS

Setting and Participants

Potentially eligible subjects were patients with the diagnosis of stroke admitted for the first time to 1 of 945 Medicaid-certified SNFs in Ohio between March 24, 1994, and September 30, 1996. To reduce the potential for residual cohort bias related to the sequential cross-sectional nature of the data,[5] we included only patients admitted in the last week of each quarter during this period, as described elsewhere in detail.[4] For this investigation, we also included only patients admitted from an acute care hospital, excluding 293 patients admitted from

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Supported by the Ohio Board of Regents and the Agency for Health Care Policy and Research (grant no. 5 T32 HS00059-04).

No commercial party having a direct financial interest in the results of the research supporting this article has or will confer a benefit on the author(s) or on any organization with which the author(s) is/are associated.

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0003-9993/05/8605-9337$30.00/0
doi:10.1016/j.apmr.2004.10.045

home. Based on analyses not reported here, about 5% of the sample is patients who received care in acute rehabilitation units before nursing home admission. In the data used for this study, there is no way to identify such patients.

Data

Data were obtained from the Ohio Minimum Dataset Plus (MDS+) and Ohio's death certificate files from 1994 to 1997. The MDS+ is a well-validated assessment tool used to collect a comprehensive description of each patient admitted to Ohio's Medicaid-certified nursing homes, including demographics, preadmission living arrangements, diagnoses present on admission, and, during the initial week in the nursing home, measures of physical health, functional status, psychosocial well-being, activity preferences, medications, specific treatments, restraints, indicators of quality of life, and the receipt and amount of rehabilitation services provided.[6] Reliability studies that included the State of Ohio have supported the use of MDS+ across sites, except for the measures related to delirium,[7-9] which are not used in the analyses reported here. The admission MDS+ is completed during the first 2 weeks of the nursing home stay and is repeated at the end of each quarter, allowing longitudinal evaluation of functional status in patients who remain in the nursing home. Unique patient identifiers facilitate linkage of MDS+ data with Ohio's vital statistics files, to permit identification of subject deaths. The institutional review board at the MetroHealth Medical Center approved this investigation and confidential management of study data.

Intervention

Receipt of rehabilitation services was defined from MDS+ as receiving more than 45 minutes of a rehabilitation therapy (physical therapy [PT], occupational therapy [OT], or speech therapy [ST]) during the first week of the admission. This cutoff was used because it represented the minimum amount of rehabilitation therapy required for incremental reimbursement under Ohio's nursing home financing policies during the study period.

Outcomes

Two outcomes were examined. Discharge to the community was defined when an admitted patient was neither alive in a nursing home, as identified from MDS+ files, nor dead, as identified by Ohio's death certificates, by the end of the quarter after his/her nursing home admission. Significant functional improvement was defined as a 10-point gain in the motor component of the 100-point functional independence measure, derived from the MDS+,[10] at the end of the quarter after his/her nursing home admission. The 10-point gain was chosen arbitrarily as a level of change that would be of clinical significance. Such a change represents an improvement of slightly less than 1 level of assistance (eg, from moderate to minimal assistance) in the items used to derive the scale.

Propensity for Rehabilitation

We used a modification of a previously described logistic model[4] to define each patient's propensity to receive rehabilitation services.[11,12] The modeling estimates a probability (between 0 and 1) called the propensity for receiving rehabilitation therapy for each patient, based on clinical and social characteristics. The clinical and social characteristics included were 108 patient descriptors in the MDS+ recorded at the time of nursing home admission. The variables included items from the following domains of the MDS+ instrument: demographics, measures of social supports, advanced directives, a cognitive performance scale, communication ability, vision, mood, psychosocial well-being, daily activity level, activities of daily living (ADLs) on nursing home admission, use of assistive devices, nutrition, the presence of specific comorbid conditions, and medical treatments. The propensity score, derived from this process, allows us to identify both patients who are highly likely to receive rehabilitation services but who did not, as well as patients who were unlikely to receive rehabilitation services but who nevertheless did. It allows us to adjust directly for these 108 variables as the outcomes among patients who did and did not receive rehabilitation are compared.

The logistic model had a *c* statistic of .78, indicating good discrimination for receipt of rehabilitation. Visual evaluation of the graph of the predicted and actual distribution of propensity deciles and the Hosmer-Lemeshow goodness of fit test (χ^2_8 test=6.2, P=.63) indicated that the model calibration was good.

Analysis

By using logistic regression, we estimated the effect of rehabilitation on each outcome after adjusting for propensity score and measures of severity of illness. Severity covariates included age, cognitive score, ADL score, bowel and bladder continence, body mass index (BMI), nonoral methods of feeding, number of medications, presence of comorbid illnesses, medical treatments, premorbid living arrangements, and evidence of visits from family. Odds ratios were converted to risk ratios by using the technique of Zhang and Yu.[13]

We then divided the sample into quintiles of propensity (ie, 5 equal-sized groups based on propensity for receiving rehabilitation services) and examined a plot of the effect of rehabilitation. We tested the homogeneity of effect across these 5 strata by using the technique described by Woolf.[14] Based on these results, we conducted the remainder of the analyses with the sample divided into 2 subgroups: patients with lower propensity for rehabilitation (the lowest 3 quintiles) and patients with higher propensity for rehabilitation (the highest 2 quintiles).

We repeated the logistic regression analyses in the 2 redefined propensity strata, to determine the association of rehabilitation with both community discharge and functional improvement, controlling for the clinical severity measures. Finally, we compared the sociodemographic and clinical characteristics of the 2 propensity subgroups by using chi-square and Wilcoxon signed-rank tests. All statistical analyses were conducted by using SAS, version 8.2.[a]

RESULTS

The sample consisted of 2013 patients admitted from a hospital to a nursing home after a stroke. Of these 2013 patients, 1442 (72%) received rehabilitation and 571 (28%) did not. By 3 months after nursing home admission, 743 (36.9%) patients were discharged to the community, 335 (16.6%) had died, and 935 (46.5%) remained in the nursing home. Of the 935 who remained in a nursing home, 885 (95%) had motor ADL scores available both at admission and 3 months after admission (fig 1).

Figure 2 displays the effect of rehabilitation on community discharge for the overall sample and by quintile of propensity. Overall, after adjusting for patient propensity for rehabilitation and severity of illness, patients who received rehabilitation were 1.58 (95% confidence interval [CI], 1.33–1.85) times more likely to be discharged to the community than those who did not. By quintile, this beneficial effect is only significant in the 3 quintiles least likely to receive rehabilitation. Not surprisingly, the relative rates of community discharge were not homogeneous across the quintiles (χ^2_4 test=4.91, P=.30). After dichotomizing the quintiles into lower and higher propensity subgroups, the relative rate of community discharge associated with the use of rehabilitation in the lower-propensity subgroup

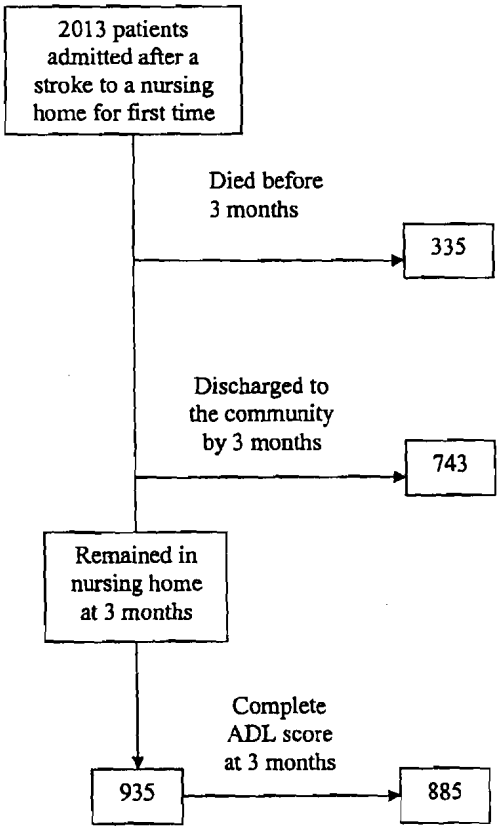

Fig 1. Patient flow in the first 3 months after admission to the nursing home.

was 1.65 (95% CI, 1.35–1.97), whereas the relative rate in the higher-propensity subgroup was 1.21 (95% CI, 0.87–1.56).

Table 1 compares the baseline characteristics of the total study sample and the 2 subgroups of patients with lower and higher propensity for rehabilitation. Patients less likely to receive rehabilitation were slightly older and more likely to be white. Patients less likely to receive rehabilitation had a lower prevalence of depression, more cognitive deficits, and more problems with bowel and bladder continence; they also were more likely to have do-not-resuscitate (DNR) orders (all $P<.005$). Of note, patients less likely to receive rehabilitation also were much more likely to have Medicaid as their primary insurance, and, although they were less likely to have lived alone before admission, they were less likely to have regular contact with relatives during their nursing home stays (all $P<.005$).

Of the 885 patients who had motor ADL measurements both on admission and after 3 months, 125 (14.1%) showed improvements in scores of 10 points or greater. Few baseline characteristics were significantly associated with improvements on bivariate analysis, and these all tended to reflect poorer baseline condition. Patients more likely to show functional improvements had lower baseline motor ADL scores (39.3 among patients who did improve vs 43.7 among patients who did not improve, respectively, $P=.05$), lower likelihood of bladder continence (14.8% vs 24.2%, respectively, $P=.04$), and a higher likelihood of congestive heart failure (27.2% vs 19.6%, respectively, $P=.05$). Although patients with improved motor ADL scores were more likely to have received rehabilitation services (72.0% vs 65.9%, respectively), this association was not significant on bivariate analysis ($P=.18$). In the multivariable analysis, neither the effect on the overall remaining sample (relative risk=1.05; 95% CI, 0.64–1.71) nor the effect stratified by propensity for rehabilitation showed an association of rehabilitation with improved motor ADLs.

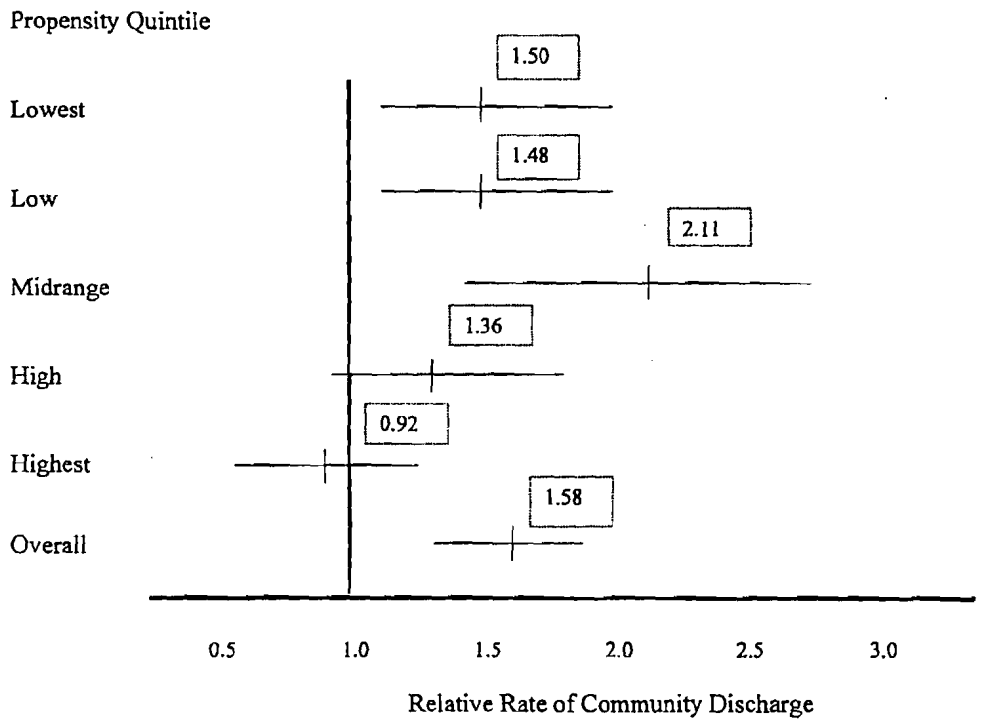

Fig 2. Relative rates of community discharge in the sample, divided into quintile of propensity. Horizontal bars represent the 95% confidence intervals.

Table 1: Baseline Characteristics of Study Sample and Propensity Subgroups

Baseline Characteristic	Propensity for Rehabilitation		Total	Level of Significance
	Lower	Higher		
No. of subjects	1183	830	2013	
Age ± SD (y)	78.4±10.2	77.4±10.2	78.0±10.2	.02
Sex (% female)	60.1	60.0	60.1	.96
Race (% white)	88.5	85.0	87.0	.02
BMI ± SD (kg/m²)	23.8±4.9	24.7±5.3	24.2±5.1	<.001
Motor ADL score ± SD*	45.3±21.3	46.5±17.5	45.8±19.8	.03
Cognitive impairment score ± SD†	3.1±2.1	2.2±1.8	2.7±2.0	<.001
Lived alone (%)	27.6	36.3	31.2	<.001
Regular contact with relatives (%)	80.2	85.5	82.4	.002
Bladder continent (%)	27.7	34.2	30.4	<.001
Bowel continent (%)	38.7	47.4	41.4	<.001
Diabetes (%)	31.2	30.4	30.8	.75 (NS)
Depression (%)	13.4	18.1	15.3	.004
CHF (%)	21.7	24.5	22.9	.15
DNR status	44.5	25.9	36.8	<.001
Medicaid insurance	16.7	11.3	14.5	.001
Hours of rehabilitation per week	7.2	9.2	8.2	<.001

Abbreviations: CHF, chronic heart failure; DNR, do not resuscitate; NS, not significant; SD, standard deviation.
*Motor ADL score is a calculation of the motor components of the FIM instrument derived from the MDS+[10] and placed on a scale of 18 to 100.
†MDS Cognitive Performance Scale[22] (lower scores reflect fewer cognitive deficits).

DISCUSSION

In the United States, as the LOS in the acute hospitals after stroke has declined, Medicare-supported nursing home admissions after stroke have increased almost 3-fold between 1987 and 1998, from 36,063 to 103,913.[15] In 1999, 25% of all Medicare patients hospitalized for acute stroke were discharged to nursing homes, with most receiving rehabilitation services for the purpose of improving functional independence and increasing the likelihood of eventual return to the community. The financial disincentive for providing such services that is integral to the BBA of 1997 makes it imperative to identify more clearly those stroke patients who are most likely to benefit. In the absence of data from controlled trials of rehabilitation in the nursing home setting, patient selection likely will be guided by local practice patterns and forces that may be unrelated to evidence of benefit.

Although our earlier work showed the overall effectiveness of rehabilitation for improving rates of community discharge,[4] the results of this investigation suggest that there are patient subgroups who benefit more than others. We found that patients who were less likely to receive rehabilitation therapy on admission actually had higher relative rates of community discharge at 3 months when they received rehabilitation, whereas those who were more likely to have received rehabilitation did not. From a clinical perspective, these lower-propensity patients were more likely to be cognitively impaired and incontinent of bowel and bladder function and to have somewhat lower motor ADL scores on admission. These findings support those of Kane et al,[16] who reported better results for poststroke rehabilitation among patients who were sicker on admission.

Our results also suggest that lower propensity for rehabilitation was associated with factors that are not strictly clinical in nature, including being insured by Medicaid, having less regular contact with relatives, and having DNR orders written on admission. Although similar results regarding the selection process have been reported by others,[17,18] there is no evidence that these characteristics are more or less likely to be associated with beneficial effects of rehabilitation.

There are 2 plausible explanations why patients with a higher propensity to receive rehabilitation services apparently did not benefit in terms of community discharge. First, higher-propensity patients may have been more likely a priori to be discharged to the community, both for clinical and for nonclinical reasons. The results displayed in table 1 suggest that these patients may have been less disabled on admission and hence more likely to be discharged home, regardless of the provision of rehabilitative services. Because the MDS+ data system does not record standard measures of stroke severity, such as the National Institutes of Health Stroke Scale,[19] it is not possible to determine from this study whether the higher-propensity patients had less severe strokes by conventional measures. By similar argument, it may be that, although patients with problems of cognition and continence had better *relative* improvement with rehabilitation, the higher absolute levels of baseline cognition and continence among higher propensity patients (see table 1) may have made their transition home less challenging to caregivers. With regard to other measures of a social nature, it is noteworthy that patients with higher propensities for rehabilitation were significantly more likely to have regular contact with their relatives, substantially lower likelihood of DNR status on admission, and greater likelihood of medical insurance other than Medicaid. The presence of good social support has been described elsewhere[17,18] as being associated with the selection of patients with stroke to receive rehabilitation. Second, among those more likely to receive rehabilitation, we may have failed to detect a true beneficial effect from rehabilitation because of inadequate statistical power. Of the patients in the top 2 propensity quintiles, more than 90% (750/830) actually received rehabilitation, limiting our ability to detect a beneficial effect.

Almost half the admitted stroke patients remained in a nursing home after 3 months, and these patients appeared not to benefit from rehabilitation in terms of improved functional status. On bivariate analyses, only lower baseline ADL scores and higher levels of bladder incontinence and prevalence of congestive heart failure were significantly associated with an

improvement in functional status. Of note, the first 2 of these also were associated with a lower likelihood of rehabilitation (see table 1) and a greater benefit from rehabilitation in terms of community discharge.

As an effectiveness analysis,[20] the results of this investigation may understate the benefits of an "ideal" program of PT, OT, and ST among stroke patients admitted from an acute care hospital to a nursing home. Indeed, the purpose of our study was to examine the effectiveness of rehabilitation as provided in more typical settings, adjusting in the most rigorous way possible for differences in patient severity and selection for treatment. Rehabilitation services in our study were defined by data used for administrative as well as clinical purposes across 945 Medicaid-certified nursing homes, including facilities in urban and rural areas, those affiliated and unaffiliated with academic medical centers, and for-profit as well as not-for-profit ownership. Each of these characteristics may be associated with different types and intensities of rehabilitative services.[21] Thus, among patients who are less likely to receive rehabilitation, the benefit of rehabilitation on community discharge described in this study is likely to underestimate the effect of an ideal program. In addition, among higher-propensity patients, our findings of no effect and of no effect on functional status among patients who remain in the nursing home may understate the true effect of an ideal program of rehabilitation. Although it may be tempting to adjust statistically for the differences in nursing home characteristics, to do so would be to lose most of the between–nursing home variation. It is exactly this variation that is the natural experiment we are exploiting in this observational study.

Because of the BBA of 1997–related disincentive for providing rehabilitation in nursing home settings, it has become increasingly important to produce hard evidence on which to base decisions about which stroke patients should receive such services and what types and intensity of services should be provided. In the absence of such evidence, rehabilitation therapy for stroke may be discouraged generally, or its provision may be directed disproportionately to those who are least likely to benefit. The consequence of such decisions include not only the failure to optimize stroke patients' outcomes but also a paradoxical increase in government-sponsored costs for skilled nursing and long-term care.

CONCLUSIONS

With respect to community discharge, patients who were less likely to receive rehabilitation therapy appear to receive greater benefit from rehabilitation services than those who were more likely to receive rehabilitation. Rehabilitation services do not seem to be successful in improving function for patients who become long-term residents. From a clinical perspective, these findings should cause rehabilitation professionals to re-examine the decision process about who should receive rehabilitation in the nursing home setting. Until research helps to better define who should be treated, a more liberal approach to selecting patients for rehabilitation should be pursued—that is, trials of rehabilitation therapy for more impaired patients should be encouraged. Clinical research should be designed to better characterize who receives benefits from these services and why functional improvement is not better among long-term nursing home residents. Researchers also need to examine how the changes that have been prompted by the 1997 BBA have influenced treatment and outcomes among patients with stroke.

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Journal of Surgical Oncology 2007;95:361–369

Rehabilitation of Surgical Cancer Patients at University of Texas M. D. Anderson Cancer Center

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With early detection and treatment, survival rates for many types of cancer have improved. Long term survivors have number of issues, which can include functional deficits, pain, fatigue, lymphedema and altered bowel and bladder function. Simple activities such as mobility and the ability to perform self care can be limited. In addition, re-integration into society with activities such as driving, social interaction and return to work are often problematic. The goal of cancer rehabilitation is to improve quality of life by minimizing disability and handicap caused by cancer and associated treatments. Initial rehabilitation interventions usually occur in an inpatient setting as patients often experience a decline in functional status due to cancer progression and or surgical treatment. Rehabilitation interventions reduce the debility and functional deficits and add to the quality of life for cancer patients undergoing surgical treatments. The rehabilitation team can assist not only with acute decline in functional status but also with re-integration back in society. Both general and specific rehabilitation interventions based on diagnoses are reviewed.
J. Surg. Oncol. 2007;95:361–369. © 2007 Wiley-Liss, Inc.

KEY WORDS: **cancer rehabilitation; quality of life; functional deficits; lymphedema**

INTRODUCTION

With early detection and treatment, survival rates for many types of cancer have improved. The combined 5-year survival rate for all cancers is currently 63% [1]. Long-term cancer survivors may have physical, cognitive/linguistic, psychological impairments. More specifically, impairments include decreased range of motion and strength, lymphedema, altered bowel/bladder function, fatigue [2], sexual dysfunction [3,4], and pain. These deficits can lead to functional abnormalities [5] such as impaired mobility and activities of daily living (ADLs). Cancer survivors also face challenges with re-integration into society due to impaired community skills such as driving, social interaction, and return to work. With growing survivorship, these impairments have also been increasing [6].

The goal of cancer rehabilitation is to improve quality of life by minimizing the disability and handicap caused by cancer and associated treatments. In many cases, the major goal may simply be decreasing the "burden of care" needed by cancer patients and allow patients to maintain their personal dignity. Cancer rehabilitation can be divided into several stages: preventive, restorative, supportive, and palliative [7]. Preventive rehabilitation begins before or immediately after a treatment to prevent loss of function or disability. Many patients may have pre-existing weakness and impaired functional capacity prior to discharge. Pre-cancer treatment may help prevent post-treatment complications, reduce the risk for falls, and shorten the length of the hospital stay. Restorative therapies include comprehensive program to restore patients to their pre-morbid status. The goal of

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Received 8 January 2007; Accepted 9 January 2007
DOI 10.1002/jso.20775
Published online 7 March 2007 in Wiley InterScience (www.interscience.wiley.com).

supportive rehabilitation is to minimize disability and prevent further complications. The palliative stage focuses on reducing the impact of increasing disability [8,9] (NCCN Category 2A).

In 1978, Lehman [10] first screened 805 randomly selected cancer patients and identified multiple problems that could be improved by rehabilitation intervention. Also identified were multiple barriers limiting the delivery of cancer rehabilitation care. Dietz [11] reported measurable benefits of interdisciplinary rehabilitation program in cancer patients in 1974. In cancer patients admitted to acute inpatient rehabilitation unit, O'Toole [12] reported that independent ambulation increased from 10 to 56% (NCCN Category 2A). Marciniak et al. [13] found that after acute inpatient rehabilitation, functional gains were made between admission score of functional independence measure (FIM) and discharge in all cancer subgroups. The presence of metastatic lesions did not influence functional outcome, and patients undergoing radiation made larger functional improvements. Yoshioka [14] described effects of physical therapy in 301 patients in inpatient hospice facility. Sixty-three percent of patients reported therapy intervention "highly effective" in a non-validated satisfaction survey. Forty-six patients made sufficient functional gains for self-mobility, which allowed for home discharge.

Cancer rehabilitation occurs in various settings, including acute inpatient rehabilitation in hospital, inpatient consultations, outpatient clinics, long-term acute care facilities, skilled nursing facilities, nursing homes, palliative care units, hospices, and the home environment.

THE REHABILITATION MODEL AT M. D. ANDERSON

Historical

Following World War II, M. D. Anderson Hospital employed a war veteran on a part time basis who had lost his larynx and subsequently learned to speak. He subsequently established a program for teaching laryngectomized cancer patients to speak again. This program was the first of the numerous rehabilitative programs to be established at Anderson Hospital. Another early rehabilitative project at Anderson provided instruction in stomal care to patients with ostomies. In 1950s, the head and neck section in Department of Surgery established a program maxillofacial and dental restoration for head and neck patients in conjunction with University of Texas Dental Branch.

Dr. John E. Healy, an anatomist and a surgeon, recognized unmet functional needs in cancer patients in 1960s and felt that a multi-disciplinary approach to rehabilitation efforts was needed. This approach required physicians, therapists (physical, occupational, speech), nurses, sociologist, vocational counselor, and clergyman at M. D. Anderson Cancer Center (MDACC). Referral of the patients was at the discretion of the attending physician. The section of physical medicine at MDACC initiated programs for the early restoration of shoulder function following radical mastectomy and radical neck surgery to prevent the frozen shoulder syndrome. In addition, cardiopulmonary conditioning program was also instituted. In 1960s, occupational therapy, which had previously been little more than craft work, was expanded to include functional therapy and muscle reconditioning particularly of the upper extremities and hands, the design of adaptive equipment to encourage self-help activities, and much attention to the psychological as well as the physical needs of the patient [15,16,17].

By late 1960s, and through the 1970s, there was a multidisciplinary team headed by a physical medicine and rehabilitation specialist (physiatrist). However, by late 1970s and through the 1980s, there was no occupational therapy (OT) or physiatry presence due to lack of understanding of patient's functional needs and personalities involved. Emphasis was placed by earlier OTs on psychological issues rather than current emphasis of therapy for function improvement. In early 1990s, the MDACC partnered with Physical Medicine & Rehabilitation program at Baylor College of Medicine to develop a plan to re-establish and implement a cancer rehabilitation program. The Occupational therapy program was restarted in 1994 [18].

Overview of Organizational Structure at MDACC

MDACC is a cancer hospital with more than 500 beds and a large outpatient service. Cancer patients often have significant functional loss and resultant disability due to ongoing medical, physical, social, financial, and psychological issues. Cancer rehabilitation occurs at MDACC as inpatient consultations, acute inpatient rehabilitation, and outpatient clinics. Rehabilitation for the complicated inpatient and those with advanced disease may require assistance of a cancer rehabilitation physician and the efforts of the interdisciplinary team in tertiary cancer center to adequately address the rehabilitation issues. Cancer rehabilitation can be provided in long-term acute care facilities, skilled nursing facilities, and home settings. Palliative rehabilitation can occur in a rehabilitation unit, palliative care unit, or hospice to address symptom management and caregiver education.

Patients often come to MDACC as a matter of last resort when all the treatments elsewhere have failed. Thus, patients in various cancer stages are referred to rehabilitation service and physiatrists. Referral to

rehabilitation specialists is often done to improve functional status and thus prepare patients for further treatment including experimental protocols. Discussions regarding prognosis in such as situation where patients have placed so much hope can be challenging. Disagreements with regards to prognosis are certainly present and the line between palliative and supportive rehabilitation can blur.

Successful rehabilitation outcomes rely on good teamwork and communication. A comprehensive interdisciplinary team can address the multiple issues seen in these patients in an effective manner. Team members include surgeons, primary oncologists, physiatrists, therapists, nursing staff, social workers, case managers, chaplains, dietitians, and pharmacists. Due to the acute medical and surgical issues in advanced cancer patients, it is important to have easy access with medical/surgical oncologists and medical consultants for urgent evaluation and treatment. Implied in this approach is an understanding of each team member's role, re-enforcement of patient skills, and assistance with problem solving to achieve patient-defined goals of quality of life.

While the members of this multidisciplinary approach work together, they are not necessarily organized together at an institutional level. The physical and occupational therapists are in the Division of Hospital/Clinical Operations, while the physiatrists are under an academic medicine department of Palliative Care & Rehabilitation Medicine. Speech Language Pathology section is organized under Department of Head and Neck surgery. Neuropsychologists are employed in Department of Neurology and Psychiatry, while nursing has its own division.

Team Members and Their Roles

Physiatrist (physical medicine and rehabilitation specialist). Physiatrists are board certified specialists trained in assessment of impairment and disability due to acute or chronic disease processes. Physiatrists may prescribe medications, modalities, assistive devices, orthotics, and prosthetics to treat impairments. The role of a physiatrist is to assess and manage the functional deficits caused by cancer and its treatments. Cancer rehabilitation is often challenging because the functional deficits and resultant disability change with progression of malignancy and related treatments. Thus, the functional goals may have to be readjusted, sometimes frequently. The management of such deficits requires an understanding of (a) the underlying disease, including usual treatments and prognosis, (b) the expected functional outcomes and role of various therapies. Consultation for a physiatrist is requested in an inpatient or outpatient setting by various services and is separate from rehabilitation therapy services, (i.e., physical, occupational therapy etc). The physiatry consultation is done within 24 hr of such a request and billed as a regular medical consult. Physiatrists also perform electrodiagnostic studies in outpatient for evaluation and management of neuromuscular disorders.

The need for physiatrist services has grown steadily over the years. Since the recruitment of a full time physiatrist in early 1990s, the section of Physical Medicine and Rehabilitation has grown now to five physiatrists, two advanced practice nurses, and one nurse for coordination of clinical care, that is, assisting with consultation process. From September 1999 till August 2000, 615 inpatient consults were done and of these, 308 were admitted to the inpatient rehabilitation service. By 2005–2006 (September–August), the inpatient consults had risen to 951 and 403 of these were admitted to inpatient service.

Staff physiatrists are involved actively in education process involving other staff physicians, therapists, nursing staff, and other individuals. Physiatry residents from University of Texas at Houston and Baylor College of Medicine alliance program rotate with MDACC to gain hands on experience with cancer rehabilitation. Residents and medical school student from other medical schools may also rotate through with a physiatrist. Recently a 1-year cancer rehabilitation fellowship program was approved by the institutional graduate medical education committee and is expected to start recruiting in 2007.

Therapists

The rehabilitation therapy staff consists of over 50 physical therapy and occupational therapy clinicians, and 9 speech language pathologists. In addition, there are two audiologists also available. Rehabilitation therapists see over 150 inpatients and 50 outpatients per day. The rehabilitation referrals can be from any physician involved in patient care in an inpatient or outpatient setting. These referrals are typically made on an individual basis, that is, for physical therapy or occupational therapy alone. The billing for therapy is done based on the time spent with the patients. The ongoing staffing plans are based on the referral volume of referrals and this plan is evaluated on an ongoing basis. The challenge of recruiting and training staff is affected by the difficult nature of oncology population.

Physical therapy (PT). Physical therapists assist patients with physical abilities to increase functional independence and mobility. Hands-on techniques are used to improve strength, flexibility, balance, endurance, and coordination. Safe mobility with or without use of assistive devices and negotiation of stairs are emphasized.

They recommend and provide appropriate adaptive equipment such as canes and walkers. Patients can be fitted for regular or custom braces to assist weak legs for positioning or walking. These therapists design specialized exercise programs to address the problems affecting the patient's functioning. More specifically, such programs work on improving strength, balance, and coordination. Family members and caregivers are instructed on how to safely assist patients in transfers and during walking or exercise. PT's may also use modalities, such as heat/cold applications and electrical stimulation for treatment of pain, spasticity, or contractures. At MDACC, physical therapists are also involved in assessment and management of lymphedema.

Occupational therapy (OTs). Occupational therapists provide education and training to improve a patient's ability to perform ADLs. Basic ADLs include transfers in and out of bed, toileting, bathing, feeding, dressing, grooming etc. Advanced ADLs include but are not limited to cooking, cleaning, money management, and shopping. OTs assess the role of various assistive devices, or use of durable medical equipment (DME) or adapted techniques to improve function. Some of the assistive devices and DME include wheelchairs, bathroom equipment, a reacher or sock aid. Occupational therapists provide assistance with orthotics, which may either be off-the-shelf or custom-made splints to promote healing, positioning, rest or pain relief. Exercises and training to improve dexterity, gross coordination, strength, and range of motion in arms and upper bodies are prescribed. Instructions are given with regards to energy conservation techniques to help manage fatigue for return to work and leisure activities. They provide the assessment of return to work by simulating work activities, capacity to drive, which is a step before proceeding with a road test.

In addition, an animal-assisted therapy program [19] (NCCN–Category 3) is available for patients through the occupational therapists and is designed to provide both physical and psychosocial therapy through interaction with dogs, helping patients meet therapeutic goals in a relaxed and enjoyable environment. Patients who require physical or occupational therapy are eligible for this program. The patient's therapists and doctor determine if taking part in such therapies will help achieve the patients' therapeutic goals.

Speech language pathology (SLP)/audiology. The speech language pathologists are involved in diagnostic and therapeutic interventions in cases involving cognitive and linguistic deficits as well as swallowing disorders. They are also routinely involved with aerodigestive pathology where communication deficits and prosthetic restoration would be commonly expected, both in preoperative planning phase and postoperatively. Audiologists are consulted in cases involving hearing loss including chemotherapy-related ototoxicity.

Neuropsychology. Neuropsychologists provide assessment and treatment for neurocognitive and neurobehavioral disorders due to cancer, cancer treatment, and other coexisting problems. Their clinical assessment includes quantitative evaluation of memory, speech and language, verbal perception, attention, intellectual function, motor function, mood and personality, executive functions, quality of life and more. They also provide cognitive rehabilitation strategies and training, cognitive behavioral therapy, self-hypnosis, and relaxation therapy for symptom management, and even evaluations of a patient's ability to drive a car safely.

Rehabilitation nursing. In addition to providing routine nursing care, the rehabilitation nurse plays a key role in patient, family, and caregiver training of bowel, bladder programs; and reinforcing appropriate techniques to complete activities of daily living. Specialized nursing staff provide wound and ostomy care. Both routine and novel surgical interventions leave patients with surgical wounds, which require aggressive follow up from a surgical oncologist and plastic surgeon. Wound care nurses assist with patient/family education, routine follow up during inpatient rehabilitation stay and continuing wound needs in home and outpatient environment.

Case management. At MDACC, 30 case managers facilitate the process of care provided to patients and their families. Case managers work with insurance companies to provide clearance for necessary rehabilitation intervention, including acute inpatient rehabilitation. They serve as advocates for patients and their families with the diagnosis of cancer. At the time of discharge from the hospital, they serve an invaluable role in assisting with the transition of care to other hospitals, long-term acute care facilities, skilled nursing facilities, home health care services, preferred providers and hospices. In addition, they help coordinate delivery of DME such as hospital beds, wheelchairs, and commodes as well as home oxygen so that patients receive their equipment in timely manner and at the right location. All of the patients at MDACC have a case manager. In an outpatient setting, case managers are assigned based on the primary tumor. In the inpatient setting, there is a case manager for every service. The inpatient rehabilitation service has a dedicated case manager.

Social worker. Social workers assist patients and their families in coping with the diagnosis of cancer and eliminate psychosocial barriers to care through integrated programs in patient care, education, and prevention. At M. D. Anderson, 48 social workers in the inpatient setting are assigned between 20 and 25 patients each.

Social workers facilitate support groups, which in turn allow patients, family members and friends to share concerns and ideas they have about cancer and its impact on their lives. In this safe and private setting, individuals have a chance to meet others in similar circumstances, develop new relationships, and find out how others cope during this time of increased distress.

Patients at MDACC come from a variety of backgrounds and present with various needs and requests. Social workers assist many patients and families needing assistance in finding local resources such as lodging/housing, transportation, financial support programs, community support programs, home healthcare, and hospice care. Social workers are assigned to patients in a similar manner to case management. In acute inpatient rehabilitation, most patients have significant psychosocial concerns. There is a full time social worker to address their concerns.

Chaplaincy. For many patients, cancer is more than just a disease, it is a test of faith. M. D. Anderson chaplains assist patients with finding or reaffirming a belief in God or a Higher Power and guide patients on their spiritual journey. Chaplains of all denominations are available at any hour to patients and their family members, with worship services, bedside visits, prayer requests, support groups and online message boards. Private meditation areas within the hospital provide space for quiet reflection. There is a dedicated chaplain available for patients on the inpatient rehabilitation service.

Acute Inpatient Rehabilitation and Inpatient Consultations

An inpatient consultation to a physiatrist is usually requested to assist with discharge planning and need for acute inpatient rehabilitation. Following cancer treatment, there tends to be a dramatic decline in function. A comprehensive rehabilitation evaluation begins with a history and physical exam. Specific emphasis is placed on the musculoskeletal, neurological, pulmonary, and cardiac systems for tolerance of therapeutic activity and exercise. Functional assessment includes status of mobility, self care activities, and cognitive deficits. The patient's home and work environment is assessed, which includes the number of stories and number of steps into home that must be negotiated upon discharge. The patient's social support system is determined, and more specifically, who will provide physical and supervision assistance for the patient at discharge. A review of medical coverage and financial resources of patient is necessary to determine the services available, that is, home-health therapies, nursing visits etc, and DME allowed. Based on the initial evaluation, the anticipated medical treatments, and the anticipated short- and long-term functional outcomes, the patient's rehabilitation goals and setting for rehabilitation therapies are determined. A patient's social supports may also impact rehabilitation recommendations. Those with more support are likely to go home and thus receive inpatient rehabilitation intervention whereas those with limited support and anticipated long term assistance needs may receive skilled nursing rehabilitation therapies. If a patient is not able to tolerate therapies and the social support system for the patient is good, then the recommendation may still include inpatient rehabilitation to address family training and dispensing appropriate DME. Since functional improvement occurs primarily in therapies, intact cognition, a willingness to participate, and patient motivation are absolutely crucial for a good functional outcome are also important factors when considering the setting of rehabilitation interventions.

The acute inpatient rehabilitation unit is a shared unit, typically with neurological patients. The capacity of this unit is that of 16 beds and the patients are usually transferred from other inpatient services within the institution. The patients are transferred to this unit with goal of discharging them to their homes. Aggressive symptom management is a crucial part of acute inpatient rehabilitation. At the time of admission, the most severe symptom complaints are fatigue, poor appetite, insomnia, pain, anxiety, and constipation. The entire rehabilitation team focuses on addressing and minimizing the symptoms that may impact their participation in therapies. During their stay in rehabilitation, patients receive 3 or more hours of therapy a day. Therapy time is not only used for functional activities and tasks but also for education of family or other caregivers in transfers, mobility skills, and hygiene techniques. Proper education can decrease caregiver stress of providing care and the patient concerns about being a burden. However, progressive disease can lead to increasing disability, which means rising levels of assistance from loved ones. Rehabilitation intervention may be helpful in form of education and dispensing appropriate DME, such as hospital bed, various lifts and orthotics. Patients who are receiving palliative rehabilitation may have significant fatigue and thus have limited energy to pursue daily activities. Therefore, family training, DME procurement, and arranging for social support become a priority at this stage. The physiatrist can play an important role in directing therapy goals and urging the oncologists to inform the patient and family members about the prognosis.

When patients experience functional decline occurs due to progression of malignancy or with development of acute illness, patients are transferred back to primary

service. Our unpublished data shows that 35% of the cancer patients were transferred back to the primary oncology team during rehabilitation (12% for the cancer treatment and 88% for worsening medical condition), which is comparable to that of prior studies [13]. However, the transfer rates tended to be less with surgical patients.

Patients in our acute inpatient rehabilitation unit have a variety of tumor diagnoses with brain, spine, lung, breast, hematologic, genitourinary, gastrointestinal, and head and neck cancers being the most common. The most common surgical consulting team was neurosurgery [20]. The most frequent rehabilitation impairments include severe asthenia (due to prolonged immobility), severe gait abnormality with fall risk, dyspnea with exertion, hemiparesis, spinal cord injury , and neurogenic bowel and bladder dysfunction. The average length of stay in the inpatient rehabilitation unit has been around 10 days for last 6 years.

In a follow up of 60 consecutive patients admitted to inpatient rehabilitation unit with metastatic spinal cord compression, the median survival time was 4.1 months. Thus such patients could easily be considered to have received palliative rehabilitation, most made enough functional gains in an inpatient rehabilitation setting to be able to go home and thus could be considered to have received supportive rehabilitation [21] (NCCN Category 2B).

After acute inpatient rehabilitation, significant improvements are noted in areas of pain, fatigue, anxiety, appetite, insomnia, constipation, and sense of well-being. Upon discharge, many patients receive analgesics, appetite stimulants, laxatives, hypnotics, antidepressants, and neurostimulant such as methylphenidate [22] Functional gains have also been demonstrated in cachectic patients without significant improvement of their nutritional status [23] (NCCN Category 2B).

Outpatient rehabilitation. Most patients receive outpatient therapy and follow up in outpatient rehabilitation clinic upon discharge from the acute inpatient rehabilitation unit. Referrals for therapy and physiatric consultations may also come from other health care providers for patients who are currently reside in a community setting. Common diagnoses in outpatient clinics include lymphedema, myofascial pain, rotator cuff dysfunction, peripheral neuropathy, and lower back pain. Patients with lymphedema require a close follow up after the initial consult with medical and therapy teams. For assessment of muscle and nerve, electrodiagnostic studies are performed by the neurologists and physiatrists in an inpatient or outpatient setting at the discretion of the primary or consulting physician. Common indications include a obtaining a baseline study, and evaluation of progressive weakness or unexplained peripheral neurological deficits.

In patients who remain relatively stable and in remission, questions of residual disability, handicap and return to work are addressed in the outpatient setting. A detailed work description is elicited and if patient appears to meet at least the initial criteria for performing such duties, then an outpatient OT consultation is obtained to perform work simulation and a functional capacity evaluation. Neuropsychological evaluation is very helpful if there are concerns of cognitive deficits. Return to driving is another common concern. After ensuring that a patient does not have any obvious limitations, an occupational therapy consult is placed for appropriateness for driving. If patient is deemed appropriate, then a behind the wheel test can be scheduled with an external vendor.

REHABILITATION OF SPECIFIC DISORDERS AT M. D. ANDERSON

Depending on the primary tumor, patients are assigned to various cancer centers such as Thoracic, Sarcoma, Urology, Brain & Spine. These centers are designated primary services and they are responsible for care of their patients, including the usual diagnostic and therapeutic interventions. Any consultation for a physiatrist or rehabilitation service usually comes from this primary service either in an inpatient or outpatient setting.

Head/Neck Center

The main impairment for patients head and neck malignancy includes speech and swallowing dysfunction. SLP intervention starts with preoperative and planning phase of treatment. At this phase, their evaluation has impact on treatments, including surgical interventions that the patient may undergo. Post-operatively, these patients are routinely seen to address communication and swallowing issues. A fluoroscopic swallow study performed in conjunction with a radiologist provides a functional evaluation of swallowing. Post operative head and neck surgery issues include communication deficits, dysphagia, malnutrition, tracheostomy care, oral care, shoulder impairments and chronic neck pain (NCCN Category 2A). Audiologists may be consulted as needed in patients with hearing deficits.

Brain and Spine Center

Brain and spine tumor patients usually have the diagnosis of hemiparesis/cognitive deficits or spinal cord injury. In these patients, PT and OT consults are routine in the inpatient setting and included in the post-operative or admission orders. Speech language pathology

consultation is performed for those with cognitive deficits or swallowing disorder. Issues of neurogenic bowel and bladder require pro-active rehabilitation nursing staff. Bladder training includes patient and family teaching for an intermittent catheterization program, or management of an indwelling catheter. Patients have difficulty with evacuating fecal material due to a neurogenic bowel are educated in an upper or lower motor neuron bowel program. Often these patients have initial constipation and stool retention and require an aggressive bowel program prior to instituting a more routine bowel regimen. A full time bowel management nurse is available to monitor the overall progress of these patients and others throughout the hospital with bowel difficulty. A neuropsychological evaluation is usually requested in brain tumor patients during both pre and post operative phase as an outpatient. Such an evaluation is particularly helpful where cognitive concerns are present and patient wishes to return to work (NCCN Stage 2B).

Sarcoma Center

Rehabilitation issues are routinely encountered in patients with musculoskeletal pathology. After common orthopedic surgical interventions for fractures, joint replacement, limb conservation procedures and amputations, patients typically have significant impairments of limb or joint(s) in terms of range of motion restrictions, weight bearing and decreased strength. PT and OT are routinely consulted to address these impairments. The therapists require clarification of orthopedic precautions for weight bearing and range of motion from the orthopedic surgeons in order to tailor the therapy sessions for a given patient. Outpatient therapy may be initiated for gait training and appropriate DME. Patients with amputation may need an evaluation by a prosthetist for prosthetic fitting in addition to rehabilitation therapies for prosthetic training (NCCN category 2A).

Breast Center

After breast surgery, including mastectomy, range of motion exercises are initiated at the discretion of the attending physician. Full range of motion is usually not permitted until removal of all drains. If a patient has difficulty with mobility, then a PT consultation is placed. Consultation for a physiatrist is typically done on an outpatient basis as needed and most often for persistent lymphedema, ipsilateral shoulder range of motion deficits and chest wall tightness. Radiation treatment may exacerbate these deficits.

Aggressive outpatient physical therapy for lymphedema focuses on education, assessment, management, monitoring, and family training. Manual lymphatic drainage (NCCN-Category 2A) uses light pressure to mobilize edema-related fluid in a retrograde fashion and from areas of stasis to healthy lymphatics [24–30] Manual manipulation of the skin and subcutaneous tissue may open gaps between the junctions of the terminal lymphangioles and enhance flow of limb fluid through the lymphatic system. Complex decongestive therapy (NCCN Category 2A) treatment is a multimodality program consisting of skin care, manual lymphedema treatment, exercises, and compression wrapping, followed by a maintenance program and psychosocial rehabilitation. Such an approach has been recommended as a primary treatment by consensus panels [31–33] and is an effective therapy for lymphedema unresponsive to standard elastic compression therapy [34–36]. The efficacy of this approach has been well illustrated [35,37] with volume reduction in 95% of the patients with maintenance of reduced in volume at 1–3 years in the majority of compliant patients [34,36]. Most patients benefit from aggressive wrapping of affected limb with non-elastic material for most of the day. With improvement and plateau of volume reduction with rehabilitation interventions, patients are dispensed a custom fit compression garment [30,32,40,41] (NCCN Category 2A). Such garments should be replaced every 3–4 months with regular use or less frequently otherwise.

Patients are typically followed a few times per week for at least 4–6 weeks. Appropriate home exercises are also shown and heavy lifting is restricted. Recurrence of lymphedema can occur without any specific etiology, and the usual treatment is restarting aggressive outpatient physical therapy. Work modification may be necessary to prevent recurrence of lymphedema.

FUNDING AND SUPPORT

Since MDACC is a designated specialty hospital, it is DRG exempt. The distribution of Medicare to commercial insurance is roughly 50% and 40% respectively. Around 10% of our patients are indigent. For patients with any commercial insurance, preauthorization is required for rehabilitation benefits, including acute inpatient rehabilitation stay, outpatient visits, and DME. . All of the patients on whom acute inpatient rehabilitation intervention is recommended have significant functional deficits. Such deficits are documented in physician assessment and therapy notes. Payors usually accommodate such requests without difficulty. On occasions, difficulties do arise and for the following reasons:

(a) Inadequate documentation of the full extent of debility and functional impairments of patients and the rationale for rehabilitation interventions. Verbal communication with the insurance medical director typically addresses this issue.

(b) MDACC not being the preferred provider for a particular payor. In such cases, patients are transferred to appropriate facility of choice. In cases where atypical medical and surgical concerns exist and there is a need for regular follow-up during recuperation phase, the managed care office at MDACC negotiates for in network rates.

(c) Limited benefits—In this instance, patients are referred to lower level of care and rehabilitation as allowed by the payor.

CONCLUSION

With improvement in survival rates for many types of cancer, survivors can have many functional deficits that adversely affect quality of life. The goal of cancer rehabilitation is to improve quality of life by minimizing impairment, disability, and handicap caused by cancer and associated treatments. The comprehensive services offered at a cancer center have the potential to greatly enhance the functional outcome and quality of life for these patients.

SUMMARY POINTS

- Patients with cancer frequently develop significant functional deficits due to the disease and its treatments. Such deficits may wax and wane during the clinical course [10] (NCCN Category 2A).
- The rehabilitation needs of patients with cancer are often under recognized [10] (NCCN Category 2A).
- A multidisciplinary rehabilitation team significantly improves overall quality of life not only during periods of acute illness and treatment in an inpatient setting, but also when disease is in remission or is being treated on an outpatient basis (NCCN Category 2A).

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ATTACHMENT 8

Journal of Surgical Oncology 2007;95:370–385

Policy Issues Related to the Rehabilitation of the Surgical Cancer Patient

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Four policy challenges that face the rehabilitation community in providing services to surgical cancer patients are reviewed: (1) achieving capacity to meet the complex rehabilitation needs of a growing population of cancer patients and long-term survivors; (2) identifying effective models for delivering cancer rehabilitation services; (3) understanding complex insurance coverage and payment policies and determining their effects on access to rehabilitation services; and (4) investing in clinical and health services research to guide rehabilitation practice. Recommendations are made to increase the recognition of cancer rehabilitation as an essential component of cancer survivors' care, improve access to appropriate rehabilitation services, and accelerate the pace of cancer rehabilitation research.
J. Surg. Oncol. 2007;95:370–385. © 2007 Wiley-Liss, Inc.

KEY WORDS: **neoplasms; rehabilitation; health policy; delivery of health care; health insurance; Medicare; health services research**

INTRODUCTION

Surgical interventions have improved significantly in recent decades, contributing to declines in cancer-related morbidity and improvements in quality of life among cancer survivors. Notable advances in surgery have included nerve-sparing, limb-sparing, and in general, less disfiguring procedures. Nevertheless, as described in subsequent reviews in this issue, cancer treatment often has debilitating and persistent side effects affecting stamina, physical function, and other aspects of health. Post-surgical cancer patients in particular often are fragile and need highly complex, specialized, multidisciplinary care. Rehabilitation services can help cancer patients and long-term survivors regain and improve physical, psychosocial, and vocational functioning within the limitations imposed by the disease and its treatment [1–3]. Further, early identification of rehabilitation needs and timely onset of rehabilitation services can reduce disability and associated healthcare costs [4]. Yet despite the apparent need, few organized cancer rehabilitation programs exist in the United States [5–7]. The development of cancer rehabilitation programs lags behind those organized for patients with some other chronic conditions such as heart disease—for which rehabilitation is now considered a part of standard care [8].

This paper will discuss four policy challenges facing the rehabilitation community in providing services to surgical cancer patients: (1) achieving capacity to meet the complex rehabilitation needs of a growing population of cancer patients and long-term survivors; (2) identifying effective models for delivering cancer rehabilitation services; (3) understanding complex insurance coverage and payment policies and determining their effects on access to rehabilitation services; and (4) investing in clinical and health services research to guide rehabilitation practice. We conclude with a discussion of recommendations aimed at increasing the recognition of cancer rehabilitation as an essential component of cancer survivors' care, improving access to appropriate

The analysis, opinions and assertions contained herein are those of the author and are not to be construed as reflecting the views or position of the National Academy of Sciences, the Institute of Medicine, or the National Research Council.

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Received 8 January 2007; Accepted 9 January 2007
DOI 10.1002/jso.20777
Published online 19 March 2007 in Wiley InterScience (www.interscience.wiley.com).

rehabilitation services, and advancing the state of the science of cancer rehabilitation.

Achieving Capacity to Meet Cancer Rehabilitation Needs

There will be 1.4 million individuals diagnosed with cancer in 2006 and an estimated 65% of these individuals will survive at least 5 years following their diagnosis [9,10]. Successes in early detection and treatment have contributed to a growth in the population of cancer survivors, now estimated to number 10.1 million [11]. The number of survivors of cancer is expected to balloon with the anticipated growth of the US population and the aging of the baby boom cohort [12–14]. In 2011, the first members of this group will reach age 65, the age at which the risk of cancer steadily rises. Barring significant progress in cancer prevention, the absolute number of people aged 65 and older diagnosed with cancer is expected to double from 2000 to 2050 [15].

While surgical advances have tended to reduce post-treatment morbidity, they have not eliminated the need for rehabilitation among post-surgical cancer patients. Rehabilitation needs should be identified and addressed as early as possible during the hospital stay, as planning can be difficult, especially for those patients with limited support at home. Some of the common post-surgical conditions amenable to rehabilitation services are described in Table I. A trend toward multi-modal, complex cancer treatments has led to an emergence of late effects of treatment as well, some occurring years after the completion of primary treatment. There is limited information on the prevalence of these late effects, but there is a general recognition that they have become more common as patients are frequently treated with combinations of surgery, chemotherapy, radiation, and hormone treatments [12]. Many individuals are also living with cancer as a chronic condition with their cancer in check, but having to manage related persistent symptoms. Evidence on the consequences of cancer and its treatment on overall function in the long term are emerging. Individuals with a history of cancer have higher rates of limitations in activities of daily living, functional limitations (e.g., mobility), and disability than their peers without a cancer history according to population-based surveys [16–21]. Disability may greatly affect quality of life, including the ability to work [22,23]. Nearly one out of five cancer survivors reported cancer-related limitations in ability to work when interviewed 1–5 years following their diagnosis in one of the largest cross-sectional studies to date [23]. Work-related outcomes are significantly worse for cancers of the central nervous system, hematologic cancers [23], and cancer of the head and neck [24]. Other investigators point to the vulnerability of cancer survivors with jobs involving manual labor [25].

Improvements in long-term survival and a growing recognition of the late effects of cancer and its treatment suggest that the demand for rehabilitation services will increase. There is very limited information on the use of rehabilitation services specifically by cancer survivors. According to national survey data, 13% of cancer survivors who live in households (and not institutions such as nursing homes) report using physical therapy (PT), occupational therapy (OT), respiratory therapy, or audiology services within the past year [16]. Use is higher (18%) among community dwelling cancer survivors reporting functional limitations. These percentages certainly underestimate current use of rehabilitation services given the exclusion from the survey of individuals living in institutions. Nevertheless, when applied to the population of 10.1 million cancer survivors, 1.3 million cancer survivors are estimated to be using these rehabilitation services for their cancer or other co-morbid conditions.

Cancer rehabilitation services are multidisciplinary and typically involve several types of professionals, including physicians trained in physical medicine and rehabilitation (physiatrists), physical therapists, occupational therapists, rehabilitation and oncology nurses, and other specialists (Box 1). Other types of professionals may also provide rehabilitative services (e.g., massage therapists, chiropractors). There may be some ambiguity in who to involve in rehabilitation care. While some survivorship interventions unequivocally come under the umbrella of the rehabilitation specialist (e.g., strengthening programs, speech training), other interventions (e.g., bowel or bladder management, osteoporosis care) might be best handled in the rehabilitation setting by other practitioners, or by a combination of both, depending on the clinical context.

Box 1
Cancer Rehabilitation Professionals

- Physiatrists
- Rehabilitation and oncology nurses
- Occupational therapists (OT)
- Physical therapists (PT)
- Prosthetis/orthotists
- Enterostomal therapists
- Nutritionists/Dieticians
- Speech-language pathologists (SLP)
- Vocational rehabilitation counselors
- Recreational therapists

SOURCE (5,78).

TABLE I. Common Conditions Seen in the Postsurgical Cancer Patient Ammendable to Rehabilitation Services

Condition/symptom	Specific effects	Rehabilitation intervention
Deconditioning/debility	Loss of muscle strength, joint mobility, bone mineralization; cardiac, pulmonary, bowel, bladder and psychological effects	Activity/exercise stamina, strength, deep breathing); energy conservation techniques; treat bowel, bladder, mood issues; comfortable, familiar environment and routine to avoid confusion
Pain	Nociceptive; neuropathic	Medications, psychologic strategies, modalities (therapeutic heat and cold, acupuncture; avoid deep heat directly over area of tumor)
Weight gain	General adverse health effects; may be a risk factor for cancer recurrence or second cancers, at least in some types; may be a risk factor for lymphedema, especially in setting of other risk factors	Conditioning exercise; diet
Fatigue	May be related to deconditioning (see above), depression, endocrine disturbance (especially hypothyroidism), metabolic changes, anemia, infection, sleep disturbance, medications	Promising data with exercise programs; screen and treat other causes as appropriate
Psychiatric/psychologic effects	Depression; anxiety; adjustment to disability	Counseling, medications, exercise, community activities
Sexual effects	Post-surgical alteration of pelvic structures, often aggravated by fibrosis (especially if radiation treatment); psychologic effects	See pelvic surgery, prostatectomy (below); counseling, education
Surgical interventions	Specific effects	Rehabilitation intervention
Removal of lymph nodes	Lymphedema, joint contracture, neuropathy, plexopathy	Stretching exercise, elevation, complex decongestive therapy (manual lymph drainage, compression bandaging and garments, exercise, precautions, deep breathing); role of pumps?
Prostatectomy	Urinary incontinence, sexual dysfunction, poor body image	Physical therapy for pelvic floor exercises, oral medication, intracavernosal (per urology) injection, vacuum-assisted devices, penile prosthesis
Abdominal or pelvic surgery	Ostomy, deconditioning, risk of intestinal dysfunction, hernia, altered bowel function, sexual dysfunction, incontinence	Instruction in ostomy care, diet, medications to optimize bowel function. Sexual and body image counseling. Men-see prostatectomy; Women-vaginal dilators, lubricants, changes in sexual positions to minimize discomfort;
Amputation/limb sparing procedures	Functional changes, cosmetic deformity, psychosocial impact, phantom and/or neuropathic pain, accelerated arthritis in other joints	Pre and post-operative education and counseling, pain management, desensitization techniques, prosthesis, assistive devices, edema management, strengthening, gait training
Lung resection	Difficulty breathing, fatigue, deconditioning	Physical and/or occupational therapies for endurance, energy conservation strategies, breathing exercises. Oxygen supplementation if needed.
Head and neck surgery	Impaired communication, swallowing, breathing, cosmetic changes, facial lymphedema, abnormal neck or shoulder motion	Speech therapy (articulation, breath support exercise, esophageal speech training, swallowing strategies), electrolarynx, tracheoesophageal fistula (per otolaryngologist), dietary modification; stretches and strengthening of affected structures; maxillofacial prosthetics.
Neurologic structures (brain and spinal cord)	Impairment of motor-sensory function, cognition, language, swallowing, vision, bowel and bladder	Physical, occupational and speech therapies for mobility, functional living skills, cognitive and communication and feeding strategies; address equipment needs (orthotics, gait aids, adaptive equipment, wheelchair/cushions); skin care (especially decubitus prevention), neurogenic bowel and bladder treatment; thromboembolic prophylaxis.

SOURCE: 2 (Table 56-3); 12 (Table 3-2).

Relatively few physiatrists and physical therapists—two key members of the rehabilitation team—appear to have specialized in cancer. For example, there are an estimated 6,600 board certified physiatrists, but only about 30 are members of the American Academy of Physical Medicine and Rehabilitation's Cancer Special Interest Group. Of the more than 120,000 licensed physical therapists, only about 600 belong to the

American Physical Therapy Association's Oncology Section [12]. Given the potential demand for cancer rehabilitation services, this level of health personnel specialization appears inadequate. A review of continuing medical education opportunities on cancer survivorship in physical medicine and rehabilitation did not identify many cancer-specific opportunities [12] suggesting that this area has not been prioritized by professional organizations that provide such training. More recently, cancer-related educational resources have been developed for rehabilitation professionals [26].

Some evidence suggests that cancer-related rehabilitation services are not uniformly available in established cancer programs, despite quality of care standards pertaining to such services. The American College of Surgeons 'Commission on Cancer (ACS-CoC) sets standards for quality multidisciplinary cancer care and recommends that its ACS-CoC-approved cancer programs provide rehabilitation services either onsite or by referral (Standard 4.7) [27].[1] According to data collected by the ACS-CoC in 2006 to assess compliance with standards, 91% of programs had services provided by physical therapists, 81% had a lymphedema rehabilitation service, and 80% provided enterostomal care [28]. There are more than 1,400 ACS-CoC-approved cancer programs in the US and Puerto Rico; these programs represent nearly 25% of all hospitals and are the setting where more than 75% of all newly diagnosed cancer patients are treated, either on an inpatient or outpatient basis. The capacity of cancer programs will likely be stretched with the anticipated growth in the number of cancer patients and long-term survivors, many of whom can be expected to have rehabilitation needs.

Identifying Effective Models for Delivering Cancer Rehabilitation Services

There is no organized cancer rehabilitation service delivery system, despite a history of congressional interest in fostering the development of cancer-focused programs (Box 2). One of the earliest cancer rehabilitation programs was established in 1969 by Dietz, a physiatrist who coordinated the resources of an acute care hospital and a cancer center [29]. The expansion of the role of the National Cancer Institute (NCI) into rehabilitation in 1971 led to the development of related training, demonstration, and research projects. Some observers have noted, however, that further developments

Box 2
Congressional Actions Affecting Cancer Rehabilitation

1965—Congress authorized the establishment and maintenance of Regional Medical Programs under the Heart Disease, Cancer and Stoke Amendment (P.L. 89–239). These programs were:

"to encourage and assist in the establishment of regional cooperative arrangements among medical schools, research institutions, and hospitals for research and training, including continuing education, and for related demonstration of patient care."

Fifty-six regions were established across the nation. Rehabilitation units were to be created in association with diagnostic and treatment services. The program was terminated in 1976.

1971—Congress passed the National Cancer Act (P.L. 92–218) to amend the Public Health Service Act to strengthen the National Cancer Institute of Health. The Act authorized the first cancer centers and established cancer control programs as necessary for cooperation with State and other health agencies.

1988—Congress passed legislation (P.L. 100–607) to add rehabilitation research to NCI's mission as follows:

"The general purpose of the National Cancer Institute is the conduct and support of research, training, health information dissemination and other programs with respect to cause, diagnosis, prevention, and treatment of cancer, rehabilitation from cancer, and the continuing care of cancer patients and the families of cancer patients." (42 USC 285)

1998—The Women's Health and Cancer Rights Act (P.L. 105–277) requires group health plans, insurance companies, and health maintenance organizations offering mastectomy coverage to also provide coverage for certain services. Required coverage includes all stages of reconstruction of the breast on which the mastectomy was performed, surgery and reconstruction of the other breast to produce a symmetrical appearance, prostheses, and treatment of physical complications of the mastectomy, including lymphedema.

SOURCES (70,79,80,81).

[1]NCI-designated Comprehensive Cancer Center Programs are exempt from this standard. 26. Commission on Cancer. Program Standards, 2006 [cited 2006 May 19]; Available from: http://www.facs.org/cancer/coc/programstandards.html.

in cancer rehabilitation were stalled because there was no specific implementation plan, a lack of trained personnel, and a failure to educate referring health care professionals [30]. Others have suggested that specialized cancer rehabilitation programs have been slow to develop because of the heterogeneous nature of the effects of cancer and its treatment as compared to other causes of disability [31].

There is a general sense that cancer patients' rehabilitation needs are not being fully addressed in existing programs, but the magnitude of this gap has not been well studied. Research conducted in acute oncology settings has found unmet cancer patients' rehabilitation needs [32,33]. While such studies have led to recommendations for more routine assessment of cancer patients for rehabilitation needs, with physiatrist or dedicated nurse liaison consultation, such a process of intensive consultative focus of the acute oncology population is far from the norm. Screening tools that could streamline and facilitate such a process have been developed specific to cancer (e.g., Cancer Rehabilitation Evaluation System (CARES), the European Organization for Research and Treatment of Cancer (EORTC) Quality of Life Questionnaire, Functional Assessment of Cancer Therapy (FACT)), but they have not been widely adopted outside of research settings [34].

Evidence suggests that early identification of rehabilitation needs and early start of rehabilitation services can reduce healthcare costs, length of hospital stays, and disability [4]. Further, the resulting improvements in outcome and quality of life can be particularly valuable to individuals who may have limited survival, such as some cancer patients. Once cancer patients' rehabilitation needs have been recognized, however, how to best deliver care—whether through subspecialty rehabilitation programs organized around the cancer diagnosis, or alternatively, by integrating cancer patients more effectively into existing rehabilitation service lines (e.g., brain, spinal cord, orthopedic)—has not been determined. Many of the cancer-related post-surgical problems encountered, such as deconditioning, amputation, contracture, and paralysis, fall well within the spectrum of general rehabilitation care. In support of a generalized approach is evidence that cancer patients in conventional acute rehabilitation care respond comparably to those without cancer in terms of functional gains, length of stay, and rates of discharge to the community [2]. Acute rehabilitation units admit many medically complex patients and have appropriate systems to manage a wide range of medical issues. Comparative studies of other settings, including rehabilitation units dedicated to cancer care, have not yet been performed.

A specialized approach to rehabilitation may be needed for some cancer patients because of their complex and heterogeneous needs that may span such disparate issues as neurologic and orthopedic rehabilitation, general conditioning, pain management, and lymphedema management. Cancer patients also have significant prognostic considerations that need to be factored into rehabilitation expectations [35]. For example, physical impairments associated with stroke and traumatic brain or spinal cord injury often are fixed or improving, acute care treatment for these conditions has been completed, and the likelihood of survival following the initial injury or episode is typically good. In contrast, cancer patients experiencing physical limitations may be in the midst of their oncologic treatment when rehabilitation services are needed, may have more medical comorbidity, and may be at greater risk for progression of their condition secondary to late effects or to the cancer itself. Because of these confounding factors, cancer rehabilitation goals may not always be restorative, but instead be preventive, supportive and/or palliative [29]. Rehabilitation for the post-surgical patient typically emphasizes restorative goals, especially in the early recovery period. The type of rehabilitation goal for any individual patient (e.g., restorative vs. supportive), and the nature of the rehabilitation intervention (e.g., lymphedema management vs. bone protection strategies) may change with time, necessitating a shift in focus. A specialized cancer rehabilitation program may be in a better position to recognize the dynamic nature of care.

The boundaries of rehabilitation care may also be unclear. For example, although exercise is recommended because of its demonstrated benefits in terms of work capacity, psychological well-being, length of hospital stay, and clinical status (e.g., neutropenia) [36,37], it has not been well determined (at least for outpatients) what type of intervention is most effective (e.g., formal PT vs. a less structured or supervised program) [38,39]. Controversy also exists over rehabilitation needs at the end of life. While rehabilitation interventions have been shown to improve quality of life and even function for dying patients [40], applying the label of rehabilitation may be conceptually problematic during this phase of care.

Especially in cases where life expectancy is limited, a cancer subspecialty rehabilitation team may be in the best position to balance the surgical cancer patient's complexity with their need for a rehabilitation program that is as aggressive as possible to maximize future function and quality of life. Outside of large cancer centers, however, such units are rare, and consequently the composition and other operational aspects of how such a unit would function in the "real world" have not been well delineated. For example, given that the patients are medically complex, should rehabilitation and surgical oncology "shared care" models be designed? What additional training would rehabilitation physicians and

nurses require handling the complexity of oncology-related problems such as chemotherapy side effects or transfusion needs?

Regardless of the delivery model, rehabilitation programs must be aware of pertinent cancer-related issues and communicate with oncology providers so that rehabilitation goals for cancer patients are set at the appropriate level, incorporate any needed precautions, and consider the potential for changing clinical status [3]. Logistic difficulties may also arise, especially the frequent need for concurrent oncology-related management (such as radiation therapy), and challenges inherent in accurately addressing ongoing questions from the patient and family about the cancer prognosis and oncology treatment, which may be outside of the rehabilitation team's expertise. Mechanisms must exist to integrate oncology involvement in order to attain the best possible care and functional outcomes.

Rehabilitation services are furnished in many different inpatient and outpatient settings (Table II). Outpatient programs focusing on cancer rehabilitation are particularly lacking (with the possible exception of lymphedema programs). In the immediate aftermath of surgery, rehabilitation interventions for hospitalized patients are initiated by inpatient consultation. Given the pressures often faced by facilities to limit the length of inpatient stays, it is important to arrange for this consultation as soon as possible. Rehabilitation can be initiated during the inpatient stay, or may be initiated and provided through any one or combination of inpatient rehabilitation facilities (IRFs), skilled nursing facilities (SNFs), outpatient rehabilitation settings, or home health. While inpatient rehabilitation focuses on global function, most outpatient cancer rehabilitation is focused on specific or isolated goals, such as lymphedema, swallowing disorders, or musculoskeletal pain. Screening patients in diverse oncology settings for these various rehabilitation needs presents obvious challenges, especially in the absence of practical standard screening tools. Traditionally the outpatient rehabilitation goals of cancer patients have focused on postsurgical issues (e.g., amputation or limb-sparing procedure for osteosarcoma, limited shoulder motion after axillary dissection, or speech and swallowing care after head and neck resection). Increasingly, cancer rehabilitation programs are addressing fatigue with exercise interventions [41].

TABLE II. Number and Type of Providers That Typically Furnish Rehabilitation Services, 2002

Type of provider	Number
Inpatient settings	
Inpatient rehabilitation facility (IRF) (rehabilitation hospitals or rehabilitation units of acute hospitals)	1,181
Skilled nursing facility (SNF)	15,089
Outpatient settings	
Home health agency	6,888
Rehabilitation agency	2,933
Comprehensive outpatient rehabilitation facility (CORFs) (day hospitals)	516
Hospital outpatient department	3,957
Physician office	n.a.
Private therapist practice	n.a.

Source: Authors' analysis of data from the Online Survey, Certification, and Survey System.
Note: n.a. is not available.

Understanding Insurance Rules Affecting Rehabilitation Services

Insurance plans' coverage and payment policies strongly influence the circumstances under which rehabilitation services are provided, as well as the setting and overall length of rehabilitation care. These policies are varied, complex, and may be confusing to providers and patients. The Consumer Assessment of Healthcare Providers and Systems (CAHPS) survey program indicates that annually, about 15% of Medicare patients report some type of access problem to rehabilitation services [42],[2] and studies have found wide variation in patient referral for rehabilitation, which may indicate that there are barriers to rehabilitation care, limitations in supply, or a lack of appropriate referral for the care [43]. Although PT, OT, and speech/language pathology (SLP) services are covered services in standard insurance policies, Congress and some states have mandated insurers to cover certain other rehabilitation services for cancer patients. For example, the federal Women's Health and Cancer Rights Act of 1998 requires insurance policies that cover mastectomy to also cover reconstructive surgery, prostheses and physical complications of mastectomy, including lymphedema, and several states have similar laws [44,45].[3] These federal and state mandates are not comprehensive in addressing the many and varied rehabilitative needs of the surgical cancer patient.

[2]The Consumer Assessment of Healthcare Providers and Systems (CAHPS) program, established in 1995, is an ongoing survey program of public and private health care consumers, coordinated by the U.S. Agency for Healthcare Research and Quality (AHRQ) and other federal agencies. CAHPS was designed to make it possible to compare health care consumer survey results across studies and over time and to generate tools and resources that can be used to produce understandable and usable comparative information for consumers. CAHPS information is available at http://www.cahps.ahrq.gov/content/cahpsOverview/Over_Program.asp?p=101&s=12.

[3]For example, in 2004, Virginia mandated coverage for lymphedema treatment (irrespective of diagnosis) including equipment, supplies, complex decongestive therapy, and outpatient self-management training and education for lymphedema treatment. 46. Virginia State Legislature. Virginia House Bill 1737. 2003 [cited May 23 2006]; Available from: http://www.lymphnet.org/pdfDocs/HB1737.pdf.

Rehabilitation Services Under Medicare

Since the majority of new cancer cases (56%) and of cancer survivors (61%) are age 65 or older (10, 11) and have health insurance coverage through the Medicare program, understanding Medicare's policies regarding rehabilitation can help the majority of cancer patients and their providers navigate the program and obtain appropriate rehabilitation care.[4] Coverage criteria for rehabilitation services (specifically, for PT, OT, and SLP) are broadly described in Medicare regulations and are expanded upon in Medicare policy manuals, which help the program's contractors (carriers and fiscal intermediaries) interpret and implement Medicare statute and regulations. The main criteria for coverage and key differences by setting are described in Box 3. Taken together, Medicare's regulations and policy manuals send different messages regarding rehabilitation coverage across care settings. In practice, these different messages are consistent with the acute care orientation of the Medicare program. However, they can cause confusion among providers and patients, and they illustrate the conflict between Medicare as an acute care program and the growing prevalence of chronic conditions and survivorship issues in the American population.

Medicare coverage rules also can be confusing because the vast majority of coverage decisions regarding specific services are made locally by the program's carriers and fiscal intermediaries.[5] Contractors develop "local coverage determinations" (LCDs) which are documents that list and explain the diagnostic codes that satisfy medical necessity criteria for a given service.[6] Since each contractor makes its own distinct LCDs, this means that in practice a service furnished in a clinically equivalent circumstance may be covered in one part of the country, but not covered in another. LCDs affecting 14 states, for example, do not allow coverage for

Box 3
Rehabilitation Coverage Under Medicare

Medicare regulations set forth four main conditions for therapy coverage: (1) the therapy must be provided by or under the supervision of a skilled professional; (2) the services must be considered under accepted standards of medical practice to be a specific and effective treatment for the patient's condition; (3) there must be an expectation that the patient's condition will improve significantly in a reasonable (and generally predictable) period of time, or the services must be necessary for the establishment of a safe and effective maintenance program required in connection with a specific disease state; and (4) the amount, frequency, and duration of the services must be reasonable.

Some additional discussion is found in regulations and policy manuals regarding specific settings. For example, the regulations and manuals state that in the nursing home setting a patient's restoration potential is not the deciding factor in determining whether skilled therapy is needed (42CFR409.32; CMS Pub. 9, SNF Manual sect. 214.1). In the home health setting, skilled therapy may be necessary (and thus is covered) to perform a maintenance program, rather than only establish one (42CFR409.44(c)(iii); CMS Pub. 11, HH Manual sect. 205.2).

The regulations provide less guidance regarding the reasonableness and necessity of therapy in the outpatient setting, stating mainly that a physician must refer the patient for therapy and must review a written plan of therapy treatment every 30 days (42CFR410.60; 42CFR410.61). The policy manuals that address outpatient therapy generally interpret the statutes and regulations regarding outpatient therapy more narrowly and set forth stricter requirements regarding improvement standards, restoration potential, and maintenance programs (Intermediary Manual sect. 3118.2; CMS Pub. 14 Carrier Manual sects. 2210, 2216, 2217; CMS Pub.9 CORF Manual sect. 253).

[4]Medicare covers rehabilitation under both "Part A" (hospital insurance) and "Part B" (supplemental medical insurance). Rehabilitation payments under Part A are built into Medicare's payment systems for hospital, skilled nursing, and home health services. Rehabilitation furnished under Part B is based on Medicare's physician fee schedule. Part B therapy typically applies to ambulatory care, such as rehabilitation in physician offices, hospital outpatient departments, rehabilitation agencies, or private practice therapists. SNFs also provide therapy under Part B to their residents, and also to individuals who come to the facility for care on an outpatient basis.

[5]National coverage decisions related to therapy services include cardiac rehabilitation programs (CMS Pub. 100-3, sect. 20.10); pneumatic compression devices (sometimes used for lymphedema treatment) (CMS Pub. 100-3, sect. 280.6); and speech-language services for dysphagia (CMS Pub. 100-3, sect. 170.3).

[6]Medicare contractors explain other service requirements, such as frequency restrictions or age or gender limits, in companion "articles." LCDs and articles are supplanting "local medical review policies" or LMRPs, which were comprehensive documents that listed services covered for a given diagnosis, as well as other coding and billing information, such as frequency limits. By 2006, all LMRPs are to be converted to LCDs and articles, in order to separately identify the coverage (LCD) information. This requirement is due to a section in the Benefits Integrity and Protection Act of 2000 (BIPA), which created new appeals rights for Medicare beneficiaries when they are denied coverage for a service based on lack of medical necessity.

maintenance rehabilitation programs to alleviate chronic pain [47]. Individuals can appeal claims denied by a contractor and LCDs are not binding on judges who review Medicare claims denials, however the length and complexity of this process can be a barrier to timely access to care and can be burdensome particularly for individuals with severe conditions or limited survival, or for those little social support to assist them in the process.

Beyond the basic requirements for rehabilitation coverage under Medicare described above, certain additional requirements apply to specific rehabilitation settings, including IRFs, SNFs, outpatient settings, and home health. Understanding these policies can help clinicians and patients navigate the range of rehabilitation providers and select the most appropriate setting.

Inpatient rehabilitation facilities (acute rehabilitation). The most intensive level of rehabilitation or "acute rehabilitation" is furnished by inpatient rehabilitation facilities or IRFs. These include free-standing rehabilitation hospitals as well as distinct rehabilitation units in acute care hospitals. IRF care provides an intense level of daily rehabilitation that typically is focused on improving global function and incorporates comprehensive medical supportive care such as pain management, wound care, respiratory care, nutrition, and psychological services. The average length of stay in IRFs is 15 days [48].

Insurers and IRFs have admission criteria to identify patients who would most likely benefit from IRF-level care, and familiarity with these criteria can help other providers and patients understand IRF-level care. For coverage under Medicare, an IRF patient must meet four requirements: (1) need daily rehabilitation physician visits; (2) need 24 hr rehabilitation nursing; (3) be able to tolerate a therapy program consisting of at least 3 hr of therapy per day (PT, OT, or SLP), 5 days a week; (4) need at least two forms of therapy; and (5) have the ability to achieve rehabilitation goals in a reasonable period of time (42 CFR Section 412.23 (b)(2)). The requirement for daily physician visits can be a "Catch-22" in some cases, because while there must be medical problems that are active enough to merit daily physician attention, the problems must be stable enough that they do not interfere with patients' ability to attend and tolerate an average of 3 hr of daily rehabilitation.

IRF patient admission criteria are based on function. However, Medicare also has a "facility" requirement that incorporates diagnosis. After years of relatively little compliance review of this requirement, it recently was suspended and then revised and reenacted, and thus is a current subject of attention. The current requirement states that at least 75% of an IRF's overall patient population must have any one of 13 specified conditions.[7] The remaining 25% can have any condition and are subject, like all IRF admissions, to the four patient criteria noted above. The condition list and patient population percentage is based on admission criteria developed by physiatry specialty societies and on the IRF population in the 1980s. At that time, roughly 75% IRF patients had one of 10 conditions (and the Medicare rule originally referred to 10 rather than 13 conditions). Cancer is not one of the 13 conditions, although some postsurgical cancer patients, such as those with brain tumors, spinal cord tumors, amputation, or pathologic hip fractures, fall within the 13 categories. Many surgical cancer patients have problems, such as severe deconditioning, that are not included among the specified conditions.

Medicare established the "75%" rule in 1983, when it began paying acute hospitals based on diagnosis-related groups or DRGs, in order to help distinguish IRFs from other hospitals for Medicare payment purposes and to help ensure that patients needing less intensive (and less costly) rehabilitation are not treated in IRFs. The rule was suspended in 2002 and 2003 because of inconsistencies in compliance review methods and a lack of compliance reviews, and was expanded to 13 conditions and phased back in between 2004 and 2007 [50].

Compliance with the 75% rule may become a factor in access to IRF care, because based on recent admission practices most IRFs have some difficulty meeting the rule. In 2002 and 2003 (the years the regulation was suspended), estimates of the share of IRFs meeting the "75%" criteria were in the 6–13% range [49,50]). In terms of all IRF patients, about one-half have any of the specified conditions. Further, interviews of IRF staff indicate that they now generally track their facility's level of compliance with the rule, and that the decision to admit a given patient can be affected by their facility's level of compliance at the time [49].

Members of the IRF community state that the 13 conditions on the 75% list do not reflect the current IRF population and range of patient conditions that benefit from acute rehabilitation, and have recommended that other conditions be added. The Institute of Medicine (IOM) recently convened a clinical panel on the subject as part of a Government Accountability Office (GAO) study [49]. The panel members differed regarding

[7]The 13 conditions are stroke; spinal cord injury; congenital deformity; amputation; major multiple trauma; hip fracture; brain injury; neurological disorders; burns; certain active polyarticular rheumatoid arthritis, psoriatic arthritis, and seronegative arthropathies; certain systemic vasculidities with joint inflammation; severe or advanced osteoarthritis involving two or more major weight-bearing joints meeting certain criteria; and knee or hip joint replacement meeting certain criteria (the patient must have undergone a knee or hip joint replacement or both during an acute hospital stay immediately before the IRF stay and also have had a bilateral procedure, or be at least 85 years of age, or have a body mass index of at least 50). (42CRF412.23(b)(2.))

whether conditions should be added to the 75% list, but agreed that condition alone is not sufficient and recommended that patient functional status be incorporated into the 75% rule. The panel also concluded that limitations in the current state of rehabilitation research is a key problem in considering additional conditions for the 75% list, and the panel and GAO recommended that research should be encouraged on the effectiveness of acute rehabilitation and factors that predict patient need for these services.

Skilled nursing facilities (subacute rehabilitation). Many patients leaving acute hospitals may need inpatient medical care and rehabilitation but cannot meet the criteria for IRF care. For example, a patient may not need daily physician visits or may be too frail or medically unstable to tolerate 3 hr of daily rehabilitation in an IRF. In these cases, rehabilitation in a SNF may be appropriate. A patient can qualify for SNF coverage if she or he needs daily (5 days/week) rehabilitation or needs daily skilled nursing care.

In addition, Medicare requires that a SNF patient must have a 3-day or longer stay in an acute hospital within 30 days prior to her or his SNF admission. The hospital stay requirement exists because the SNF benefit is intended for patients recovering from a recent hospitalization and is not intended to cover long-term, custodial nursing home care. However, in some cases this requirement is a barrier to cost-effective medical care management. For example, from a clinical perspective, changes in rehabilitation needs or complications of chronic diseases often can be addressed with skilled nursing care in a facility and without a prior hospital stay, and further these situations may not meet hospital admission requirements of urgency or need for a procedure. Despite this, the requirement is unlikely to be removed, because of the increases in overall Medicare expenditures that have been estimated to occur if the requirement is eliminated [51].

While the Medicare IRF admission criteria help convey the intensity level of acute rehabilitation, the range of SNF-level rehabilitation, typically called "subacute rehabilitation," can been seen in the categories of the Medicare SNF payment system. For patients receiving rehabilitation in SNFs, Medicare pays largely based on the amount of expected rehabilitation use, as grouped into five levels of intensity (Table III). Almost 70% of Medicare SNF patients fall within any of these five rehabilitation categories, with 30% falling in other (medically-oriented) categories [52]. About one-quarter of all SNF patients are in the three highest categories and thus receive at least $5\frac{1}{2}$, $8\frac{1}{2}$, or 12 hr (respectively) of rehabilitation per week. Roughly one-third of all SNF patients are in the "medium" category and thus receive about $2\frac{1}{2}$ hr of therapy per week. The average length of SNF stays is 25 days [46].[8]

TABLE III. Levels of Rehabilitation Furnished to Patients Under Medicare-Covered SNF Care

Rehabilitation category	Treatment minimum
Ultra high	720 min/week (12 hr). At least 2 therapy disciplines: one 5 days/week; one 3 days/week
Very high	500 min/week (approx. 8½ hr). At least 1 discipline 5 days/week
High	325 min/week (approx. 5½ hr). At least 1 discipline 5 days/week
Medium	150 min/week (2½ hr). Five days across any of the 3 disciplines
Low	45 min/week over 3 days, and 2 or more 'nursing rehabilitation activities' at least 6 days/week each

Source: RUG-III Classification System.

Rehabilitation for home-bound patients. Rehabilitation services also are available through home health care for persons whose medical needs can be managed at home rather than in an inpatient setting, but who still have skilled needs and have difficulty leaving the home. Therapy needs can be either rehabilitative or maintenance oriented, and can be delivered in conjunction with skilled nursing and home health aide services.

Medicare criteria for home health services include that a patient must have a skilled nursing or skilled therapy need, be "homebound," and have intermittent care requirements. Medicare defines "homebound" as having absences from the home mainly for medical treatment. Patients may also leave the home in infrequent occurrences of short duration, such as religious services. These standards are followed by most private insurers; Medicaid does not require patients to be homebound [57]. Two examples related to cancer care that typically justify home health are: (1) a patient exhibits decreased endurance secondary to ongoing chemotherapy, balance is unsteady, and the patient is not able to negotiate leaving

[8]Unlike at IRFs, functional status (e.g., mobility, self care, etc.) at discharge is not routinely collected by SNFs. 53. Medicare Payment Advisory Commission (MedPAC). Report to the Congress: Issues in a Modernized Medicare Program. Washington, DC: MedPAC, June 2005. available at Markiewicz, Karen http://www.medpac.gov/publications%5Ccongressional_reports%5CJune05_ch5.pdf, thus there is little information regarding the impact of SNF care, or Medicare's SNF payment system, on these types of outcomes. Studies of the amount of rehabilitation furnished in SNFs indicate that Medicare's payment system is associated with an increase in the likelihood of receiving therapy services, but a decrease in the amount of therapy per recipient. 54. Wodchis WP. Physical rehabilitation following medicare prospective payment for skilled nursing facilities. Health Services Research 2004 Oct;39(5):1299–1318; 55. White C. Rehabilitation therapy in skilled nursing facilities: effects of Medicare's new prospective payment system. Health Affairs 2003 May-Jun; 22(3):214–223; 56. Yip JY, Wilber KH, Myrtle RC. The impact of the 1997 Balanced Budget Amendment's prospective payment system on patient case mix and rehabilitation utilization in skilled nursing. Gerontologist. 2002 Oct;42(5):653–660.

the home; and (2) a patient requires assistance to ambulate 10–15 feet with a walker before becoming fatigued [57].

Outpatient rehabilitation. Outpatient rehabilitation is available in many settings, but is most often furnished in hospital outpatient departments, private therapist practices, rehabilitation agencies, and in some physician practices (e.g., often in orthopedic practices). Outpatient rehabilitation can be appropriate in many clinical situations, including in the immediate aftermath of an acute hospitalization or surgical procedure, as transitional rehabilitation following inpatient rehabilitation in IRFs or SNFs, or as an integral component in a longer-term treatment and recovery plan.

Medicare pays for outpatient rehabilitation using a fee schedule (the same schedule used for physician services under Medicare), but applies an annual dollar limit to the amount of outpatient rehabilitation it covers, excluding outpatient rehabilitation furnished by hospitals.[9] Two separate limits apply, one for PT and/or SLP and one for OT. In 2006 the limits are $1,740, meaning that Medicare patients may access up to $1,740 of covered PT and/or SLP services in the year and another $1,740 of covered OT services. Most Medicare users of outpatient therapy do not reach the annual coverage limits, but those that exceed the limits do so by several hundred dollars [58].

Although Congress required the coverage limits, it passed legislation allowing Medicare to develop an exceptions process to the caps, starting in 2006.[10] An estimated 80% of the patients expected to exceed the limits would qualify for an exception, thus the exceptions are a significant modification to the coverage policy. Medicare developed two types of exceptions. The most commonly applied will be an "automatic" exception, but a "manual" (or individual) process exists also [59]. Under the automatic process, if a patient has any of nearly 100 specified conditions or complexities and it has a "direct and significant" impact on the need for additional, medically necessary therapy then the normal medical and Medicare claims documentation process is sufficient for exception from the limits, and Medicare contractors are to allow the care without any other written request. Lymphedema is one of specified conditions. Eight types of clinically complex situations also qualify for an automatic exception regardless of the condition, and many postsurgical cancer patients may qualify under these situations. Three of these situations include: being discharged from a hospital or SNF within 30 days of starting outpatient rehabilitation; requiring PT and SLP concurrently; or requiring therapy to reduce to previous levels assistance used for activities of daily living (e.g., walking, eating) or for instrumental activities of daily living (e.g., meal preparation, medication management). Manual exception can be requested in writing by providers or patients when the conditions, complexities, and clinical situations specified under the automatic process are not met. If the Medicare contractor does not make a decision within 10 days of a manual exception request, then the law states that the services requested will automatically be deemed to be medically necessary.

One concern that may impact surgical cancer patients to a greater extent than other individuals with cancer is the relatively frequent need for long term equipment and supplies, such as lymphedema garments, various types of prosthetics, and ostomy supplies. Patients often have to navigate restrictions or inconsistencies in coverage for such items, which can vary greatly among payors. Under Medicare, supplies such as garments for lymphedema (with replacement needed approximately every 6 months) or tracheoesophageal prostheses (replaced every 2 months) for laryngectomy patients, are typically not covered, and other items, such as electrolarynxes and ostomy supplies entail a 20% co-pay. Other payors, such as Medicaid, where regulations can vary greatly by state, may restrict patient access to all but the lowest cost supplies.

Other Insurers

Many private insurance plans roughly follow some of Medicare's coverage and payment rules for rehabilitation and other medical services; however one exception is regarding coverage and payment policies for outpatient rehabilitation. Most private insurers pay per therapy visit rather than per service, and most use case management, prior-authorization review, or visit limits per event (that may be flexible and reviewed on a per case basis) rather than annual coverage limitations. Limits used by some health insurers surveyed are 30 visits per event, and visits over a period of 60 calendars days from event onset [60,61]. In addition, some private insurers use practice guidelines, developed by clinical experts in combination with reviews of the medical literature, to help establish coverage eligibility or assess utilization [60]. For a given diagnosis, the guidelines generally include a description, indicators of the condition, a recommended general treatment plan, and the average or suggested number of visits. Guidelines sometimes indicate the amount of improvement that can be expected and suggested end points based on, for example, range of motion, pain levels, and a patient's ability to work.

[9]Medicare has limited Part B therapy coverage since 1972, however from 1972 through 1998 the limits applied to only one provider setting, private practice therapists. In 1999, Congress raised the coverage limits but extended them to all Part B therapy providers except hospital outpatient departments. In response public criticism of the arbitrary nature of the limits, Congress placed moratoriums on the caps largely from 2000 through 2005.

[10]Deficit Reduction Act of 2005, sect. 5107.

Investing in Clinical and Health Services Research to Guide Rehabilitation Practice

The successful expansion of cancer rehabilitation programs has been hampered by a lack of evidence upon which to base decisions regarding: who needs services; what services should be provided; who should deliver services; and where and how services should be delivered. In the absence of evidence, no widely recognized clinical practice guidelines have been developed for common cancer-related conditions and there are few evidence-based mechanisms to ensure appropriate service use. Without evidence-based guidelines, health plans and payors are disadvantaged in distinguishing necessary from unnecessary care and in identifying or recommending best treatment plans, and providers and patients can be frustrated as they seek care that they believe is appropriate.

Much of the literature documenting gains in functioning following cancer rehabilitation is based on observational studies conducted within selected institutions [62]. This lack of robust evidence of effectiveness has profound implications for patients who are facing treatment options for their cancer-related functional limitations. For example, a recent review of the evidence regarding the treatment of lymphedema related to breast cancer found insufficient high-quality evidence on which to base a clinical practice guideline [63]. There is also insufficient evidence from clinical trials or other robust study designs upon which to counsel women with breast cancer regarding how to prevent lymphedema [64].

Relatively few clinical trials have been conducted to assess the effectiveness of cancer rehabilitation services and they have been largely focused on inpatient rehabilitation (especially for patients with cancers of the brain or spinal cord) (2) and the role of exercise in cancer rehabilitation [65,66]. A recent review of the medical literature evaluating the relative effectiveness of rehabilitation programs by care setting (e.g., inpatient vs. outpatient settings) for selected conditions including cancer found a paucity of comparative studies and determined that reliable conclusions about the beneficial effects of different rehabilitation settings could not be made [67,68].

Given the great need for research to guide practice, what do we know about the status of cancer rehabilitation research? It is difficult to gauge the level of federal support for cancer rehabilitation research because of the multidisciplinary nature of the research and the variety of sponsors of such research. However, this area of cancer research appears to have been supported modestly, especially relative to the support provided to research on cancer basic science and primary treatment. Relatively few research grants on cancer rehabilitation were identified in a search of Computer Retrieval of Information on Scientific Projects (CRISP), a database of research projects and programs funded through the Department of Health and Human Services (DHHS) [69]. According to searches of this database, cancer rehabilitation research appears to have peaked in the mid 1980s, and then declined in the last decade (Fig. 1).

Most of the research catalogued falls within the broad category of extramural projects, grants, contracts, and cooperative agreements conducted primarily by universities, hospitals, and other research institutions. Some cancer rehabilitation research supported by agencies outside of DHHS, for example, the Veterans Administration, would not be represented in the CRISP data shown in Figure 1.

Most of the research represented in the CRISP database was funded through the National Cancer Institute. Cancer-specific rehabilitation research falls under the purview of the National Cancer Institute (see Box 2), but the home for clinical rehabilitation research at the National Institutes of Health is the National Center for Medical Rehabilitation Research (NCMRR), which was established by Congress in 1990 (P.L. 101-613) as a component of the National Institute of Child Health and Human Development (NICHD) [68]. The National Institute on Disability and Rehabilitation Research (NIDRR) is housed within the Department of Education and has a focus on employment, health and function, technology for access and function, independent living, and community integration [70].

Relatively modest levels of research activity may reflect meager federal investments in such research, but may also reflect the quality of the research environment. As mentioned earlier, there are relatively few physicians in physical medicine who have focused on oncology and this represents a significant limitation in terms of research capacity. A shortage of rehabilitation researchers generally has been recognized [71]. Changes in the health care environment have also taken a toll on rehabilitation research. Two-thirds of rehabilitation physicians, when surveyed, reported that declines in inpatient length of stay, decreased numbers of inpatient beds, reductions in staff, and affiliations with managed care plans have had a negative impact on their ability to pursue research [72].

The limited body of evidence on surgical cancer rehabilitation interventions may also, in part, be attributable to obstacles identified to conducting research in the field of rehabilitation generally. These include challenges in rigorously defining the research participants, the treatment under investigation, and the outcomes by which treatment response should be measured [73]. Rehabilitation interventions are often multidisciplinary, customized to the patient, experience-based, and lack

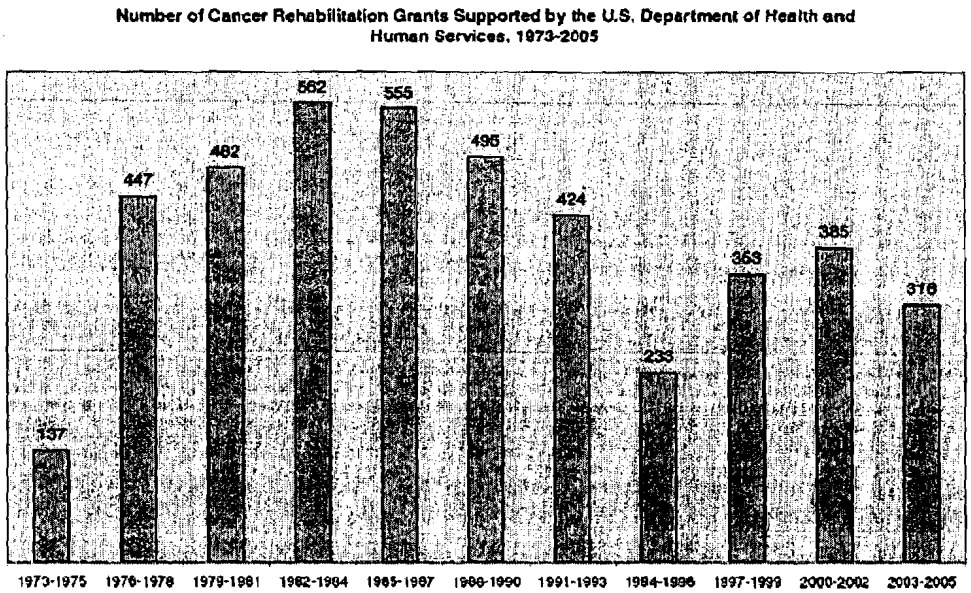

Fig. 1. Trends in the number of cancer rehabilitation research grants supported by the U.S. Department of Health and Human Services, 1973–2005. SOURCE: CRISP (Computer Retrieval of Information on Scientific Projects), Office of Extramural Research, National Institutes of Health.

standardization in definition and measurement making it difficult to isolate the "active ingredient" in research studies [74,75]. Rehabilitation care may also involve the simultaneous application of multiple different treatments, so that both the individual components and the service delivery system may need to be assessed [75]. Some have called for rigorous definitions or taxonomies of rehabilitation interventions which are supported by theory and protocol-based treatments and tools that could be used to operationalize practice standards and facilitate research [74,75]. This certainly applies to cancer rehabilitation where more work is needed to define appropriate and practical measures not only of function (mobility, self care), but of underlying impairments (weakness, limb girth, range of motion, mood, fatigue, sleep disturbance) and quality of life. Agreement on practical screening instruments would facilitate the needed research as well as the evolution of appropriate care systems.

Well-designed controlled clinical trials and rigorous health services research are needed to reinvigorate cancer rehabilitation, as well as to evaluate the impact of this important clinical care activity on patient outcomes [62,76]. Without developing this evidence of the effectiveness of services and optimal delivery systems, patients cannot easily make personal health care decisions, health care providers lack the clinical practice guidelines they need to optimize care, and insurers and payors lack the tools they need to ensure that appropriate care is given. A recent summit to address building research capacity in rehabilitation medicine generally addressed: (1) researcher capacity; (2) the research culture, environment, and infrastructure; (3) funding; (4) partnerships; and (5) metrics [77].

DISCUSSION

Surgical cancer patients have a diverse set of rehabilitation needs and the demand for services will likely increase as the population ages, long-term cancer survival improves, and cancer gains recognition as a chronic condition. Despite a growing body of evidence linking cancer survivorship with functional limitations and disability, there appears to have been little momentum in preparing for increased demand for cancer rehabilitation services. Congressional interest in promoting rehabilitation for cancer patients in the mid-1960s and the explicit addition of rehabilitation to the research mission of the National Cancer Institute did not lead to widespread access to evidence-based cancer rehabilitation care. Comprehensive rehabilitation services are not uniformly available in cancer programs and specialized personnel are lacking to assure access to cancer rehabilitation services. Few continuing educational opportunities appear to be available to close this gap in the near term.

Compounding these capacity issues is the larger dilemma of a lack of an organized cancer rehabilitation service delivery system, especially in outpatient settings where most cancer care is delivered. A health services research agenda must be articulated to help determine whether cancer patients and long-term survivors would be better served by a dedicated cancer rehabilitation

system, or instead by having cancer-related services more effectively integrated into existing rehabilitation programs. Models of care will likely vary by cancer site and extent of disease. Research is also needed to determine optimal settings of care and cost-effective provider types in varying community and practice environments.

Where and how rehabilitation services are delivered is often prescribed by coverage and payment policies. Coverage policies are complex, may be confusing to providers and patients, and some may limit access to rehabilitation services. It can be difficult for providers (and patients) to know how health insurance policies dictate where services may be provided, by whom, and their extent of coverage for such care.

Regarding coverage for rehabilitation services little is known about the impact of coverage policies on access to rehabilitation services for cancer patients and long term survivors. For rehabilitation inpatients with cancer, the biggest concern is for those that lack one of the 13 diagnosis facilitating access to an IRF, such as individuals with deconditioning or some types of orthopedic complications. Another concern is that the IRF admission criteria of medical complexity (e.g., need for daily physician visits and 24 hr nursing) and the ability to tolerate intensive (i.e., several hours a day) rehabilitation therapies can be incompatible in many individual cases. Both of these considerations (allowed diagnoses and tolerance/medical complexity) while not in an absolute sense prohibitive, may in practice affect admission decisions away from acute rehabilitation and towards less intensive settings. For outpatients, cancer patients probably face similar coverage concerns as other patient groups, including caps on reimbursement, and the effect of variations in LCDs. There is, on the surface, no particular reason to believe that cancer survivors would be more negatively impacted under Medicare policies than other rehabilitation outpatients. Given their heterogeneity, their care needs mirror those of other patients in rehabilitation, albeit with potential for higher complexity in many situations. Some of the policies governing outpatient rehabilitation therapy are new, in particular, the exceptions rule regarding payment caps, so implementation of the policies and their impact on cancer patients will have to be monitored.

In general, while policy concerns do exist, especially for inpatient rehabilitation, surgical cancer patients may in fact be more likely than non-surgical cancer patients to have an allowed diagnosis. On the other hand, surgical cancer patients are probably more likely to have long term need for equipment and supplies, with consequent funding concerns, at least in some cases.

Evidence of the effectiveness of cancer rehabilitation services, who should deliver such services, and in what manner is critical to guide the decisions of consumers, providers, educators, and payors. Such evidence is needed before the perceived barriers to access to these services can be overcome. Perhaps most crucial is research into outcomes of care, and the development and dissemination of effective service delivery models. There is a need to establish consensus regarding which metrics are most effective in screening cancer survivors for rehabilitation needs, and in measuring their progress once in the rehabilitation setting. Routine employment of such tools, particularly in conjunction with information technology systems, will result in a clinical infrastructure in which the results of cancer rehabilitation care can be examined more systematically. This need is particularly acute in the outpatient setting where an increasing share of care is provided. Given the heterogeneity of disabling impairments that cancer can produce, and the diverse network of providers, articulation of specific mechanisms and pathways to model effective care appears necessary for cancer rehabilitation to be developed beyond large cancer centers, where only a fraction of cancer patients receive their treatment. Established networks of cancer care providers that focus on quality cancer care and applied research, such as the American College of Surgeons' Commission on Cancer, the National Comprehensive Cancer Network, and the NCI-supported Cancer Research Network could facilitate research in these areas.

What steps can be taken to increase recognition of cancer rehabilitation as an essential component of cancer survivors' care and to improve access to evidence-based rehabilitation services? Implementation of recommendations of the IOM Committee on Cancer Survivorship in its recent report, *From Cancer Patient to Cancer Survivor: Lost in Transition*, could facilitate action to improve access to cancer rehabilitation services (Box 4).

SUMMARY

- An aging population, improvements in long-term survival, and a growing recognition of the late effects of cancer and its treatment will contribute to an increased demand for cancer rehabilitation services. There appear to be relatively few rehabilitation specialists focusing on post-treatment needs of cancer patients and no organized cancer rehabilitation service delivery system in the United States raising concerns regarding the future capacity to delivery cancer rehabiliation services.
- Routine assessment of cancer patients for their rehabilitation needs using available screening tools could help identify patients in need of rehabilitation services. Once identified, it is not well understood whether rehabilitation services for cancer patients

Box 4
IOM recommendations

1. Raise awareness of needs of cancer survivors and act to ensure the delivery of appropriate survivorship care.
2. Patients completing primary treatment should be provided with a survivorship care plan (which could include recommendations regarding cancer rehabilitation).
3. Health care providers should use systematically developed clinical practice guidelines, assessment tools, and screening instruments to help identify and manage late effects of cancer and its treatment. New evidence-based guidelines should be developed through public- and private-sector efforts.
4. Quality of survivorship care measures should be developed and used by quality assurance programs to monitor and improve care.
5. Demonstration programs are needed to test models of coordinated, interdisciplinary survivorship care.
6. Comprehensive cancer control plans developed by states should include consideration of cancer survivorship.
7. Expand and coordinate professional education and training.
8. Employers and health care providers should act to minimize adverse effects of cancer on employment, while supporting cancer survivors with short-term and long-term limitations in ability to work.
9. Cancer survivors need access to health insurance and coverage for evidence-based aspects of care.
10. Increase support of research and expand mechanisms for its conduct.

SOURCE Adapted from IOM (12).

are best delivered within general rehabilitation care systems or within specialized programs. The setting of care largely depends on the goals of rehabilitation, the complexity and degree of specialization required to meet the patient's needs, and in some instances, the patient's prognosis.

- Insurance plans' coverage and payment policies pertaining to rehabilitation are complex and may be confusing to providers and patients. They are, however, very important to understand as they strongly influence the circumstances under which rehabilitation services are provided, as well as the setting and overall length of rehabilitation care. Given the advanced age of most cancer patients in need of rehabilitation services, it is important for providers to understand recent changes to Medicare rules which could affect access to rehabilitation services.
- Research is critically needed to better understand which rehabilitation services are effective, when and where they should be delivered (and by whom), and what payment mechanisms foster comprehensive, cost-effective, and quality care.
- As a first step toward improving the general care provided to cancer survivors, oncology providers should give patients completing primary treatment a comprehensive care summary and follow-up plan that should include rehabilitation needs. Such a care plan has been recommended by the Institute of Medicine.

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CMA Weekly Alert – March 8, 2007

MAINTAINING QUALITY REHABILITATION OPTIONS FOR MEDICARE BENEFICIARIES

INTRODUCTION

The Medicare program pays for rehabilitation services, including physical, speech and occupational therapies, in different settings. Various kinds of rehabilitation can be provided at home through the Medicare home health benefit, in an out-patient therapy facility, in a skilled nursing facility (SNF), in a comprehensive outpatient rehabilitation facility (CORF), in an inpatient rehabilitation facility (IRF), or in a long-term care hospital (LTCH). A patient's condition and medical needs should dictate the setting in which rehabilitation services are provided. The type and amount of care a person receives varies by setting. This Alert discusses two post-acute rehabilitation options – IRFs and SNFs.

A federal standard being phased in – the so-called "75% Rule" – would make it more difficult for a hospital to qualify as an IRF, with the result that more beneficiaries would lose access to this care and, instead, would likely enter SNFs for rehabilitation. Care in these settings is not the same. A bi-partisan group of Senators has introduced legislation, S. 543,[1] to stop the 75% Rule phase-in. The question for beneficiaries is, where should they receive post-hospital rehabilitation care?

THE CURRENT RULE AND THE IMPENDING CHANGE

Medicare defines inpatient rehabilitation facilities, in part, by the percentage of their patients who require care for one or more of 13 specified conditions. In addition, Medicare coverage is available for rehabilitation in an IRF for beneficiaries in need of close medical supervision by a physician with specialized training or experience in rehabilitation; 24-hour rehabilitation nursing; and a multi-disciplinary team approach and coordinated care.[2]

Federal regulations published in 2004 began a three-year phase-in of the requirement that to qualify as an IRF, 75% of the IRF's patients must have one or more of 13 specified conditions and otherwise require intensive rehabilitation services.[3] At present, IRFs are defined as facilities in which 60% of patients have one of the 13 conditions and otherwise require intensive rehabilitation services; beginning July 1, 2007, the percentage moves to 75% of patients. Recently proposed legislation, S. 543, rejects implementation of the 75% rule, continues use of the current 60% compliance threshold, and explicitly requires CMS "to use and apply the criteria established in HCFA Ruling 85-2."

The seemingly technical issue of whether IRFs should meet a 60% threshold or a 75% threshold pits one group of health care providers against another. Inpatient rehabilitation facilities favor continuation of the current 60% rule, contending that patients do not receive comparable care in other settings;[4] skilled nursing facilities (SNFs) argue that they can provide the same care to beneficiaries at lower cost.[5]

What is true? Where should Medicare beneficiaries get post-hospital rehabilitation care? While the answer depends on the specific needs of individual beneficiaries and the types of facilities available in their communities, there is evidence that IRFs may serve different patients than SNFs, that SNFs may not provide sufficient rehabilitation and nursing services, that IRF patients have better outcomes than those who receive rehabilitation in SNFs, and that overall costs may actually be similar in the two settings.

IRFS AND SNFS MAY SERVE DIFFERENT POPULATIONS

While there is overlap in the Medicare beneficiaries who receive care in IRFs and SNFs, the facilities may serve different populations. A study commissioned by the Medicare Payment Advisory Commission (MedPAC) found that, "Compared with IRF patients, SNF patients [with hip or knee replacements] are significantly older, have more comorbidities [such as delirium, congestive heart failure, and dementia] and complications [including postoperative pulmonary compromise, cellulitis or decubitis ulcer, mechanical complications due to device or implant, and iatrogenic complications] and are more likely to be eligible for both Medicare and Medicaid."[6]

To the extent that IRFs and SNFs provide care and services to different types of beneficiaries, both categories of providers need to be available to serve the full range of beneficiaries needing post-acute inpatient rehabilitation care.

SNFS MAY NOT PROVIDE SUFFICIENT REHABILITATION AND NURSING SERVICES

In general, IRF patients must require physician supervision and intense, coordinated, multi-disciplinary care.[7] Residents in SNFs qualify for Medicare coverage of their stay if they receive therapy services five days per week.[8] The medical oversight, intensity, and coordination of care in a SNF is usually less than that in an IRF.

A 2002 Government Accountability Office (GAO) study reported that, two years after implementation of a Medicare prospective payment system (PPS) for SNFs, residents assigned by SNFs to medium and high rehabilitation groups received less therapy than before PPS and half did not receive the minimum number of minutes that were needed to be classified into those rehabilitation groups.[9] SNFs told the GAO that the high and medium rehabilitation groups had "more favorable payments, relative to their costs, than other categories."[10] The GAO concluded:

> Our work indicates that SNFs have responded to PPS in two ways that may have affected how payments compare to SNF costs. SNFs have (1) changed their patient assessment practices and (2) reduced the amount of therapy services provided to Medicare beneficiaries. The first change can increase Medicare's payments and the second can reduce a SNF's costs.[11]

In addition, SNFs may not have sufficient nursing staff to meet the needs of residents requiring rehabilitation. The GAO found that SNFs did not increase their nurse staffing after the new highly profitable[12] Medicare reimbursement system was implemented, even when Congress added money to Medicare rates specifically for nursing services.[13]

IRF PATIENTS HAVE BETTER OUTCOMES THAN SNF RESIDENTS

The MedPAC study found that

- IRF patients discharged at 14+ days had higher functional status scores than SNF patients with a 14-day or longer stay;
- 76% of IRF patients were walking independently at discharge at 14+ days after admission, compared with 31% of SNF residents at 14 days; and
- 79% of IRF patients were transferring independently at discharge at 14+ days after admission, compared with 30% of SNF residents at 14 days.[14]

A widely-quoted study of Medicare beneficiaries with hip fractures who showed the greatest potential to reduce disability also reported better outcomes for IRF patients than for SNF residents. Comparing two similar groups of beneficiaries, it found that those who went to IRFs had shorter lengths of stay (12.8 days, compared to 36.2

days for SNF residents) and better functional outcomes 12 weeks after discharge from the hospital than those who received rehabilitation services in SNFs.[15] In addition,

- 81.1% of IRF patients returned home, compared to 45.5% of SNF residents; and
- Only 8.1% of IRF patients were discharged to nursing homes, compared to 36.4% of SNF residents. Another 4.6% of SNF residents went to other "non-home settings."[16]

A later report reviewing the same patients' status at 24 weeks confirmed the initial findings. IRF patients had better outcomes than SNF residents. "IRF patients displayed a faster rate of initial recovery and more rapid discharge to home."[17]

OVERALL COSTS MAY BE SIMILAR IN THE TWO SETTINGS

While the *per day* costs of IRFs are considerably higher than those of SNFs, the significantly shorter lengths of stay in IRFs may serve to reduce the *per episode* costs of care.[18] Moreover, since IRF patients are more likely to go home than to remain in an institutional setting, "any potential cost saving from the less expensive SNF settings may be mitigated."[19]

CONCLUSION

There are several reasons to believe that implementation of the 75% rule may be poor public policy.

First, anticipation of full implementation of the 75% rule has already led IRFs to serve fewer Medicare beneficiaries.[20] Decreased access of beneficiaries to IRF care will intensify if the 75% rule is fully implemented.

Second, research indicates that outcomes for some beneficiaries may be better in IRFs than in SNFs.

Finally, while the cost differences between IRFs and SNFs have not been fully analyzed, the reduced lengths of stay in IRFs and reduced institutionalization following an IRF stay, compared with a SNF stay, suggest that Medicare reimbursement may not be saved by diverting beneficiaries from IRFs to SNFs.

Medicare beneficiaries have an interest in maintaining a full spectrum of the highest quality, appropriate health care providers. Enactment of S. 543 would help assure the availability of Inpatient Rehabilitation Facility care for Medicare beneficiaries in need of this important multi-disciplinary rehabilitation.

For more information on this topic, please contact attorney Toby Edelman (tedelman@medicareadvocacy.org) in the Center for Medicare Advocacy's Washington, DC office at (202) 216-0028.

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[1] The Preserving Patient Access to Inpatient Rehabilitation Act was co-sponsored by Senators Nelson (D, NE), Bunning (R, KY), Stabenow (D, MI), Snowe (R, ME), Kerry (D, MA), Collins (R, ME), Reed (D, RI), Clinton (D, NY), and Menendez (D, NJ).

[2] *Hooper v Harris 1985 WL 56560 (D. Conn 1985), Hooper v Sullivan,* CCH Medicare-Medicaid Guide, ¶37,985 (D. Conn 1989); HCFA Ruling 85-2, 50 Federal Register 31,040 (July 31, 1985), corrected at 50 Federal Register 32,643 (August 13, 1985).

[3] 42 C.F.R. §412.23(b)(2) (2004). The final rules and history of the 75% rule are discussed at 69 Fed. Reg. 25,752, at 25,753-755 (May 7, 2004, effective July 1, 2004). The 75% rule was originally established in 1983, but was suspended by the Centers for Medicare & Medicaid Services in 2002 after it found inconsistent use of the criteria by fiscal intermediaries. Government Accountability Office, *Medicare: More Specific Criteria Needed to Classify Inpatient Rehabilitation Facilities* 8-10, GAO-05-366 (April 2005), http://www.gao.gov/new.items/d05366.pdf.

[4] Statement of Felice Loverso, American Medical Rehabilitation Providers Association, House Ways and Means Committee, Subcommittee on Health, Hearing on Post Acute Care (June 16, 2005), http://waysandmeans.house.gov/hearings.asp?formmode=view&id=3967.

[5] AHCA, "AHCA: Preserving Medicare '75% Rule' Provides U.S. Seniors Highest Quality Care in Most Cost-Efficient Manner; Congress Urged to Preserve Key Pro-Senior, Pro-Taxpayer Measure" (News Release, Feb. 14, 2007), http://www.ahca.org/news/nr070214.htm.

[6] Medicare Payment Advisory Commission, *Report to the Congress; Issues in a Modernized Medicare Program*, 108 (June 2005), http://www.medpac.gov/publications/congressional_reports/June05_Entire_report.pdf; *see also* Michael C. Munin, "Effect of rehabilitation site on functional recovery after hip fracture," *Archives of Physical Medicine and Rehabilitation*, Vol. 86: 367-372 (March 2005). An abstract of the article is available at http://www.archives-pmr.org/article/PIIS0003999304012493/abstract.

[7] *Hooper v Harris 1985 WL 56560 (D. Conn 1985), Hooper v Sullivan,* CCH Medicare-Medicaid Guide, ¶37,985 (D. Conn 1989); Medicare Benefit Policy Manual, CMS Pub. 100-02, Chapter 1, §110.4.3, http://www.cms.hhs.gov/manuals/Downloads/bp102c01.pdf; HCFA Ruling 85-2, 50 Federal Register 31,040 (July 31, 1985), corrected 50 Federal Register 32,643 (Aug. 13, 1985).

[8] 42 C.F.R. §409.34(a)(2).

[9] Government Accountability Office, *Skilled Nursing Facilities; Providers Have Responded to Medicare Payment System by Changing Practices*, GAO-02-841, 3 (Aug. 2002), http://www.gao.gov/new.items/d02841.pdf.

[10] *Id.* 12.

[11] *Id.* 16.

[12] The GAO found that freestanding SNFs "generally received Medicare payments that exceeded their costs, often by considerable amounts." GAO, *Skilled Nursing Facilities: Medicare Payments Exceed Costs for Most but Not All Facilities* 20, GAO-03-183 (Dec. 2002), http://www.gao.gov/new.items/d03183.pdf. The profitability of Medicare payments has led the nursing home industry to eagerly anticipate implementation of the 75% rule. The cover story of the November 2006 issue of the American Health Care Association's *Provider* magazine reports that the nursing home industry is "modernizing and refurbishing aging facilities" and repositioning services "to attract higher Medicare reimbursement and more private payers." Meg LaPorte, "Providers Upgrade Buildings, Expand Services; Companies target post-acute rehab, short-stay, and higher acuity patients," *Provider* (Nov. 2006), http://www.providermagazine.com/pdf/cover-11-2006.pdf. *See also* Liza Berger, "Finance feature: Climate change," *McKnight's Long-Term Care News & Assisted Living* (Feb. 7, 2007) ("Renovations may include building more private or semi-private rooms, incorporating residential features, or building rehab gyms for short-stay residents to take advantage of Medicare's lucrative reimbursements."), http://www.mcknightsonline.com/content/index.php?id=24&tx_ttnews[swords]=Liza%20Berger&tx_ttnews[tt_news]=3583&tx_ttnews[backPid]=25&cHash=ea5cb2b07b.

[13] GAO, *Skilled Nursing Facilities: Available Data Show Average Nursing Staff Time Changed Little after Medicare Payment Increase*, GAO-03-176 (Nov. 2002), http://www.gao.gov/new.items/d03176.pdf.

[14] Medicare Payment Advisory Commission, *Report to the Congress; Issues in a Modernized Medicare Program*, 108 (June 2005), http://www.medpac.gov/publications/congressional_reports/June05_Entire_report.pdf.

[15] Michael C. Munin, "Effect of rehabilitation site on functional recovery after hip fracture," *Archives of Physical Medicine and Rehabilitation*, Vol. 86: 367-372 (March 2005), http://www.archives-pmr.org/article/PIIS0003999304012493/abstract

[16] *Id.*

[17] Michael C. Munin, "Influence of Rehabilitation Site on Hip Fracture Recovery in Community-Dwelling Subjects at 6-Month Follow-Up," *Archives of Physical Medicine and Rehabilitation*, Vol. 87: 1004-1006 (July 2006).

[18] Michael C. Munin, "Effect of rehabilitation site on functional recovery after hip fracture," *Archives of Physical Medicine and Rehabilitation*, Vol. 86: 367-372 (March 2005), http://www.archives-pmr.org/article/PIIS0003999304012493/abstract; Statement of Felice Loverso, American Medical Rehabilitation Providers Association, submitted for the record to the House Ways and Means Committee, Subcommittee on Health, Hearing on Post Acute Care (June 16, 2005), http://waysandmeans.house.gov/hearings.asp?formmode=view&id=3967.

[19] Michael C. Munin, "Effect of rehabilitation site on functional recovery after hip fracture," *Archives of Physical Medicine and Rehabilitation*, Vol. 86: 367-372 (March 2005), http://www.archives-pmr.org/article/PIIS0003999304012493/abstract.

[20] Statement of Felice Loverso, American Medical Rehabilitation Providers Association, submitted for the record to the House Ways and Means Committee, Subcommittee on Health, Hearing on Post Acute Care (June 16, 2005), http://waysandmeans.house.gov/hearings.asp?formmode=view&id=3967 (contending that approximately 20,000 Medicare beneficiaries had been denied admission to IRFs since July 1, 2004 and predicting that one of three patients would be turned away in the fourth year of the 75% rule). Senator Nelson suggested in 2007 that as many as 88,000 Medicare beneficiaries may have been denied access to IRF. Congressional Record, page S1850 (Feb. 12, 2007), http://frwebgate3.access.gpo.gov/cgi-bin/waisgate.cgi?WAISdocID=86690319867+3+0+0&WAISaction=retrieve.

July 2, 2007

The Honorable Leslie V. Norwalk, Esq.
Administrator (Acting)
Centers for Medicare and Medicaid Services
U.S. Department of Health and Human Services
Room 445-G, Hubert H. Humphrey Building
200 Independence Avenue, S.W.
Washington, DC 20201

ATTN: FILE CODE CMS -1551-P

Re: Medicare Program; Inpatient Rehabilitation Facility Prospective Payment System for Federal Fiscal Year 2008; Section II – "75 Percent Rule Policy"

Dear Administrator Norwalk:

Thank you for this opportunity to comment on the proposed revisions to the Inpatient Rehabilitation Facility Prospective Payment System for Federal Fiscal Year 2008. This comment specifically addresses proposed changes to the 75 Percent Rule Policy. This letter requests that CMS retain comorbidities for inclusion in the calculations used to determine if the provider meets the 75 percent compliance threshold as stipulated in 42 CFR §412.23 (b) (2) (ii). Such policy will remain consistent with Medicare statutes and regulations and would help to ensure that patients receive appropriate rehabilitation services in the most efficacious and cost-effective clinical setting.

RehabCare provides management and therapy services in 112 Acute Rehabilitation Units (hospital-based) and six Inpatient Rehabilitation Hospitals (freestanding). In 2006, these facilities provided acute rehabilitation services for over 44,000 patients. RehabCare also provided rehabilitation management and therapy staffing services in 689 Skilled Nursing Facility-based rehabilitation programs to 73,000 patients during 2006. Hence, we are uniquely qualified to assess the differences in cost, outcomes and clinical quality for patients with comorbidities in each setting.

The following study supports and validates RehabCare's position that should comorbidities be excluded as 75% patients, prospective Acute Rehabilitation Unit/Inpatient Rehabilitation Facility (ARU/IRF) patients who require rehabilitation but do not meet the 75 percent compliance threshold will likely receive rehabilitation services in institutional settings or remain in the acute medical-surgical unit. This consequence can compromise patient safety, yield suboptimal treatment outcomes, diminish patient, family, and physician satisfaction, and be more costly to both Medicare and other payers. This study also confirms that the market is working properly when co-morbidities are

considered for purposes of the 75 percent compliance threshold. Appropriate patients are being placed in the most efficacious and cost-effective rehabilitation setting, as indicated by the limited number of patients with overlapping diagnoses and comorbidities.

Methodology

Patients were selected from the 2006 all-payor discharges from RehabCare's 118 ARU/IRF facilities and from SNF Medicare Part-A patients discharged in calendar year 2006 from RehabCare's 689 SNFs. All facilities analyzed are those that were operated by RehabCare for the entire year of 2006 and open as of June 2007.[1]

From the 44,140 ARU patients (Table 1), 1,730 (3.9%) patients were identified by having a qualifying comorbid condition and were classified as 75% patients. A complete listing of these patients by RIC and associated comorbid ICD-9 code is presented in Appendix A. Noteworthy is the fact that only 39% of these patients had orthopedic-related rehabilitation, while over 20% were seeking rehabilitation services related to a cardiac, neurological or pulmonary condition. The principle comorbid conditions found in these patients were idiopathic peripheral neuropathy, late effects of hemiplegia, rheumatoid arthritis, and paralysis agitans, which accounted for 48% of these patients (see Appendix A).

From the 72,976 SNF patients (Table 1), 1,271 (1.7%) patients were identified that matched the ARU/IRF patients by a comparable pairing of etiologic and qualifying comorbid diagnoses. Each patient record included RIC and ICD-9 codes, age at admission, length of stay in days, and discharge destination (acute unit, SNF, long-term care facility, rehabilitation hospital, home, & other).

TABLE 1

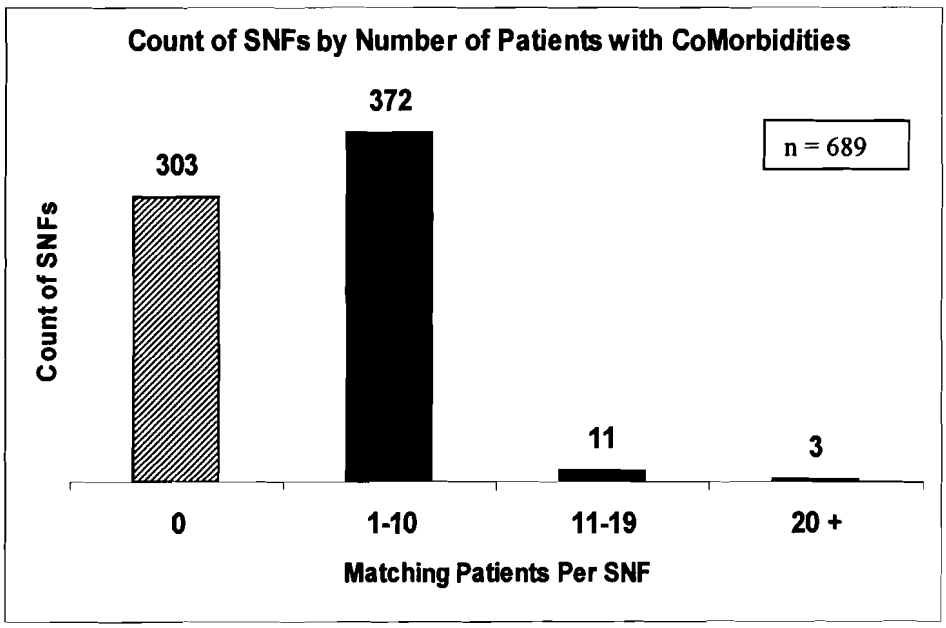
ARU/IRF (all-payor)	Patients	Percent Patients
Total Patients	44,140	100%
25% Patients without qualifying comorbidity	15,503	35%
75% Patients Qualified by RIC or Etiology	26,907	61%
75% Patients Qualified by Comorbidity	**1,730**	4%

SNF (Medicare Part A)	Patients	Percent Patients
Total Patients	72,976	100%
Patients without qualifying comorbidity	71,705	94.3%
Patients with qualifying comorbidity that match ARU/IRF	**1,271**	1.7%

[1] On July 1st 2006, RehabCare acquired RehabWorks. The RehabWorks associated facilities and patients were not included in the analyses due to incomplete year data and variable application of IT infrastructure.

As shown in Table 2, 44% of the 689 SNFs saw no comparable comorbid patients during the year, while all 118 ARUs/IRFs treated patients in the comorbid category. Only 2% of the SNFs had comorbid patient volumes on par with acute rehab settings. The remaining 372 SNFs treated less than 3 patients on average for the year.

TABLE 2



Matching Patients per SNF	Count of SNFs	Percent of SNFs	Cumulative Percent	Total Matching Patients
0	303	44%	44.0%	0
1-10	372	54%	98.0%	989
11-19	11	2%	99.6%	214
20 +	3	0%	100.0%	68
TOTAL	**689**	**100%**		**1,271**

We then compared the ARU/IRF patients and SNF patients with matching comorbidities as shown in Table 3.

TABLE 3

Demographics:	ARU	SNF
Facilities	118	689
Patients	1,730	1,271
ALOS	11.9	35.1
Avg AGE	72.3	78.4
Discharge to:		
Home	1,331 (77%)	391 (31%)
SNF/LTC/Rehab	217 (13%)	495 (39%)
Acute	161 (9%)	251 (20%)
Other	21 (1%)	134 (11%)

There are significant differences between both patient populations (see Appendix B for outcome data by RIC), including:

- **The Length of Stay (LOS) is 2/3 less for an ARU/IRF patient compared to a SNF patient.**
  - The mean LOS for ARU/IRF patients (11.9 days) was 23.2 days less than that of SNF patients (35.1 days).

- **Over 77% of ARU/IRF patients are discharged to home compared to only 31% of SNF patients.**
  - 69% of SNF patients were discharged to a setting other than home (SNF, acute inpatient care, or other setting not including home) compared to only 23% of ARU/IRF patients.
  - After controlling for the difference in average age (72.3 verses 78.4) and LOS, patients seen in a SNF setting were 6.96 times more likely to experience a discharge to another institutional setting than patients seen in an ARU/IRF setting (95% confidence interval = 5.54 to 8.73).

- **The Average Cost per Discharge was 11% less in an ARU/IRF as compared to the SNF setting because of the LOS difference.**
  - The average ARU/IRF LOS cost $12,447 (11.9 days x $1,046 per day[2]) and the average SNF LOS cost $13,935 (35.1 days x $397 per day[3]).
  - The cost of an ARU/IRF admission is $1,488 less than a SNF admission.

[2] Fiscal Year 2004 payment per day, Report to Congress: Medicare Policy Payment, March 2007.
[3] Preliminary analysis of 2004 Medicare Provider Analysis and Review file and cost report data from CMS, Report to Congress: Promoting Greater Efficiency in Medicare, June 2007.

- In addition to higher costs, the SNF stay, due to longer LOS, is associated with increased risk of:
  - Falls[4]
  - Nosocomial infections[5]
  - Pressure ulcers[6]
  - Community-acquired pneumonia[7]
  - Urinary tract infections[8]
  - Medication administration errors[9]
- Other implications
  - An additional 23 days away from home may also increase the likelihood of situational depression, with the concomitant addition of anti-depressants to the patient's medication regimen. This increased time away from home also has the potential to negatively impact family life.

- **Rationale for ARU/IRF stay for patients with qualifying comorbidities[10]**

We believe the reason for the lesser ARU/IRF LOS, resulting in less cost and the dramatic difference in discharge to home percentages, are to be found in the specialized nature of an ARU/IRF. When a qualifying comorbid condition exists along with a primary medical diagnosis or as subsequent sequelae of that diagnosis, intensive medical and rehabilitation management is required. There are essential factors unique to the ARU/IRF environment that renders it the most appropriate clinical setting for these patients (Appendix C provides detailed rationale for the medical necessity of treating comorbid patients in ARU/IRF settings by each RIC):

- **Physician involvement** is critical to the management of the complicated clinical presentation of these patients. The 24/7 day availability of physicians with varying specialties provides successful medical management for these individuals. In addition, the "close medical supervision by a physician with specialized

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[4] Vu MQ, Weintraub N, Rubenstein LZ. Falls in the nursing home: are they preventable? J Am Med Dir Assoc. 2004 Nov-Dec; 5(6):401-6.
[5] Spaulding L. The changing role of infection-control programs in long-term care management. Nursing Homes Magazine. Available at http://www.nursinghomesmagazine.com/Past_Issues.htm?ID=5082
[6] Centers for Medicare and Medicaid Services. CMS Manual System, Pub.100-07 State Operations, Provider Certification. Department Health and Human Services, 2004: Nov.12. Available at: www.cms.hhs.gov/manuals/pm_trans/ R4SOM.pdf.
[7] Dosa D. Should I hospitalize my resident with nursing home-acquired pneumonia? J Am Med Dir Assoc. 2006 Mar; seven (3 Suppl):S74-80, 73.
[8] Center for Disease Control and Prevention. Available at http://www.cdc.gov/ncidod/eid/vol7no2/strausbaugh.htm
[9] Handler SM, Wright RM, Ruby CM, Hanlon JT. Epidemiology of medication-related adverse events in nursing homes. Am J Geriatr Pharmacother. 2006 Sep; 4(3):264-72.
[10] Issues specific to the needs of these patients by RIC are discussed in Appendix C.

training or experience in rehabilitation" is required by CMS.[11] CMS policy requires less physician involvement in the SNF setting. According to the CMS Medicare Claims Processing Manual, physician visits are required at least once every 30 days for the first 90 days after admission and at least once every 60 days thereafter. Only the initial visit requires the physical presence of a physician. Subsequent visits may be delegated to non physician practitioners.[12] This approach may be less effective for medically complex patients to achieve optimum functional recovery.

- **Rehabilitation nursing** is a necessity in the 24/7 care of medically complex patients in an ARU/IRF. Certified Rehabilitation Registered Nursing (CRRN) is a specialty rarely provided in the skilled nursing environment. The Federal Nursing Home Reform Act of the Omnibus Budget Reconciliation Act (1987)[13] does not require the presence of a Registered Nurse over a 24 hour period of time. In the SNF setting there are no federal laws mandating nurse-to-resident staffing ratios for registered nurses, licensed practical nurses, and nurse aids. A total licensed nursing requirement converted to hours per resident day (HPRD) in a facility with 100 residents is approximately 0.30 HPRD.[14] These staffing patterns may not provide the most appropriate care for medically complex patients in the skilled nursing facility.

- The definition of **intensive rehabilitation management** is "a relatively intense level of rehabilitation service."[15] The general threshold for establishing the need for inpatient hospital rehabilitation services is that "the patient must require and receive at least 3 hours a day of physical and/or occupational therapy... no less than 5 days a week."[16] This level of intensive intervention is mandated by law for ARU/IRF patients but not for SNF patients.

- A **multidisciplinary team approach** provides a coordinated and efficient program of care for community re-integration. In an

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[11] Centers for Medicare and Medicaid Services. Medicare Benefits Policy Manual, Pub 100-02, Chapter 1, § 110.4.1.

[12] Centers for Medicare and Medicaid Services. CMS Manual System. Pub. 100-04, Medicare Claims Processing, Transmittal 302.

[13] Available at: http://www.ltcombudsman.org/uploads/OBRA87summary.pdf

[14] Harrington, C., & Millman, M. (2001). Nursing home staffing standards in state statutes and regulations. Report prepared for the Henry J. Kaiser Family Foundation, University of California, San Francisco. Retrieved from http://www.cms.hhs.gov/ medicaid/reports/rp1201home.asp

[15] Centers for Medicare and Medicaid Services. Changes to the Criteria for Being Classified as an Inpatient Rehabilitation Facility; Final Rule. 42 CFR Part 412 Medicare Program, May 7, 2004.

[16] Centers for Medicare and Medicaid Services. Medicare Benefits Policy Manual, Pub 100-02, Chapter 1, § 110.4.1.

ARU/IRF, the team members coordinate care by means of persistent and routine communication. This degree of extensive communication ensures that the patients have realistic goals and monitored progress. When necessary, the team expands to include clinical psychologists, audiologists, prosthetists, orthotists, pharmacists, and dietitians, among others. This amount of collaborative care is not required and is often a challenge for SNFs.

- **Availability, access, and utilization of contemporary technology and stat ordered services (e.g., bladder scans, x-rays, etc.)** establish the ARU/IRF as an effective and safe venue for the provision of intensive rehabilitation services. These consist of traditional hospital diagnostic and therapeutic equipment, state-of-the-art rehabilitation technology, and real-time information technology that facilitate communication with the entire hospital's network of services. These technological components better ensure compliance with regulatory and clinical programming and quality control, and track real-time monitoring of outcomes. Comparable technology is rarely found in the SNF setting.

Conclusion

For all the reasons presented above, very few patients with ARU/IRF matching diagnostic comorbidities that qualify them in the 75% category are admitted to SNFs. In the RehabCare analysis of 72,976 SNF patients, only 1,271 patients (1.7%) were identified. There are significant clinical, economic and social implications for these medically complex patients who are admitted to and receive rehabilitation services in SNFs.

It is important to remember that SNFs, properly staffed and configured, can and do provide high quality rehabilitation services to many patients who have historically been treated in ARUs/IRFs with similar outcomes at lower cost. Our preliminary comparison of non co-morbid patients treated in SNF based sub acute rehabilitation units show similar outcomes for simple hip and knee joint replacement patients compared to those treated in ARUs/IRFs. A full comparison of the outcomes of patients in the 25% category between our SNF programs and ARUs/IRFs should be completed by September. RehabCare Group is committed to treating patients in the most appropriate clinical setting for the best outcome at the lowest cost and we believe the data we have presented above reflect the fact that the current triage system is working well for co morbid patients.

However, if CMS does not retain comorbidities for inclusion in the calculations used to determine if the provider meets the 75 percent compliance threshold, ARU/IRF patients who require rehabilitation but do not meet the threshold will have to compete with the growing number of cardiac, oncology and pulmonary patients for the already limited availability of ARU/IRF settings due to the 75/25 rule. This will result in these

patients receiving rehabilitation services in other less appropriate clinical settings which, in turn, will bring about compromised patient safety, suboptimal treatment outcomes, and increased economic burden to the healthcare system as demonstrated by our data provided. Most patients in this medically complex category will be forced to remain in acute medical-surgical beds with limited access to the full range of efficient and effective rehabilitation services currently provided by ARU/IRFs.

Thus, we respectfully request that the final rule under Section II be restated as follows:

> For cost reporting periods beginning on or after July 1, 2008, comorbidities, as defined in Transmittal 938[17], will continue to be eligible for inclusion in the calculations used to determine if the provider meets the 75 percent compliance threshold specified in 42 CFR §412.23 (b) (2) (ii).

Thank you for your consideration of this issue. If you have any questions about our comments, please feel free to contact me at (314) 863-5244 / JHShort@rehabcare.com, or Sean Maloney, Senior Vice President of Clinical Research & Development at (314) 659-2280 / SEMaloney@rehabcare.com, or Alan Sauber, Senior Vice President of Government Programs at (314) 659-2186 / ACSauber@rehabcare.com.

Very truly yours,

John H Short Ph.D.

John Short, Ph.D.
President and CEO
RehabCare Group, Inc.

[17] Centers for Medicare and Medicaid Services. The Inpatient Rehabilitation Facility Prospective Payment System (IRF PPS). Pub 100-04, Medicare Claims Processing, Transmittal 938, May 5, 2006.

APPENDICES

Appendix A

ARU/IRF Qualifying Comorbidities by RIC

ICD-9 Codes	Total	03 Brain Dysfunction - Non-traumatic	06 Neurological Condition	07 Orthopedic - LE fracture	08 Orthopedic - LE joint replacement	09 Orthopedic - other	10 Amputation - LE	11 Amputation - other	12 Osteoarthritis	13 RA and other Arthritis	14 Cardiac	15 Pulmonary	16 Pain Syndromes	17 Major Multiple Trauma w/o BI or SCI	19 Guillain-Barre	20 Other disabling conditions
Total	1,730	16	110	79	308	290	1	27	9	20	167	74	53	21	4	551
045.00 - AC BULBAR POLIO-TYPE NOS	1					1										
047.9 - VIRAL MENINGITIS NOS	1		1													
094.0 - TABES DORSALIS	5		1			1						1				2
138 - LATE EFFECT ACUTE POLIO	39		1	5	10	8			1		3		1			10
198.3 - SEC MAL NEO BRAIN/SPINE	12	2	1			2						1	1			5
225.2 - BEN NEO CEREBR MENINGES	5				3											2
310.2 - POSTCONCUSSION SYNDROME	2					2										
320.9 - BACTERIAL MENINGITIS NOS	1															1
321.4 - MENINGIT D/T SARCOIDOSIS	1		1													
322.9 - MENINGITIS NOS	2		1													1
323.4 - OTH ENCEPHALIT D/T INFEC	1		1													
323.9 - ENCEPHALITIS NOS	3										1					2
324.0 - INTRACRANIAL ABSCESS	1	1														
324.1 - INTRASPINAL ABSCESS	4					2							1			1
324.9 - CNS ABSCESS NOS	1					1										
326 - LATE EFF CNS ABSCESS	1					1										
332.0 - PARALYSIS AGITANS	148		7	8	26	31				1	13	6	9			47
332.1 - SECONDARY PARKINSONISM	5		1										1			3
333.0 - DEGEN BASAL GANGLIA NEC	2										1					1
333.7 - SYMPTOM TORSION DYSTONIA	1				1											
334.1 - HERED SPASTIC PARAPLEGIA	2				1	1										
335.24 - PRIM LATERAL SCLEROSIS	1					1										
336.0 - SYRINGOMYELIA	1		1													
336.3 - MYELOPATHY IN OTH DIS	5					1										4
336.9 - SPINAL CORD DISEASE NOS	5		2			1								1		1
340 - MULTIPLE SCLEROSIS	25				6	6					5		2			6
342.80 - OT SP HMIPLGA UNSPF SIDE	2	1														1
342.81 - OT SP HMIPLGA DOMNT SIDE	1					1										
342.82 - OT SP HMIPLG NONDMNT SDE	1					1										
342.90 - UNSP HEMIPLGA UNSPF SIDE	23	3	1	1	2	4		1			1	2				8
342.91 - UNSP HEMIPLGA DOMNT SIDE	2		1													1
342.92 - UNSP HMIPLGA NONDMNT SDE	2		1													1
343.1 - CONGENITAL HEMIPLEGIA	1					1										
343.2 - CONGENITAL QUADRIPLEGIA	1												1			
343.4 - INFANTILE HEMIPLEGIA	1				1											
343.8 - CEREBRAL PALSY NEC	3				1	1					1					
343.9 - CEREBRAL PALSY NOS	12			1	3	3		1					2			2
344.00 - QUADRIPLEGIA, UNSPECIFD	12		2			2						2			2	4

ICD-9 Codes	Total	03 Brain Dysfunction - Non-traumatic	06 Neurological Condition	07 Orthopedic - LE fracture	08 Orthopedic - LE joint replacement	09 Orthopedic - other	10 Amputation - LE	11 Amputation - other	12 Osteoarthritis	13 RA and other Arthritis	14 Cardiac	15 Pulmonary	16 Pain Syndromes	17 Major Multiple Trauma w/o BI or SCI	19 Guillain-Barre	20 Other disabling conditions
344.04 - QUADRPLG C5-C7, INCOMPLT	1			1												
344.09 - OTHER QUADRIPLEGIA	2					2										
344.1 - PARAPLEGIA NOS	13		1		1	2					2		1			6
344.2 - DIPLEGIA OF UPPER LIMBS	1					1										
344.31 - MONPLGA LWR LMB DMNT SDE	13			1	6	2										4
344.32 - MNPLG LWR LMB NONDMNT SD	15				8	4					1					2
344.60 - CAUDA EQUINA SYND NOS	2					1							1			
344.61 - NEUROGENIC BLADDER	4		1			3										
344.89 - OTH SPCF PARALYTIC SYND	4				1	2										1
348.0 - CEREBRAL CYSTS	1															1
348.1 - ANOXIC BRAIN DAMAGE	20				2	1					5	6			1	5
348.4 - COMPRESSION OF BRAIN	1		1													
348.5 - CEREBRAL EDEMA	1		1													
348.8 - BRAIN CONDITIONS NEC	4	1		1												2
349.82 - TOXIC ENCEPHALOPATHY	32		3	1	7	3		1			5	2			1	9
353.0 - BRACHIAL PLEXUS LESIONS	4					1						1		1		1
353.1 - LUMBOSACRAL PLEX LESION	3		1								1					1
353.8 - NERV ROOT/PLEXUS DIS NEC	4		1		2	1										
354.5 - MONONEURITIS MULTIPLEX	1															1
356.1 - PERONEAL MUSCLE ATROPHY	5			1	1	2										1
356.2 - HERED SENSORY NEUROPATHY	3		1			1										1
356.4 - IDIO PROG POLYNEUROPATHY	14		1	2	7	1					3					
356.8 - IDIO PERIPH NEURPTHY NEC	10				2	1					3	1	3			
356.9 - IDIO PERIPH NEURPTHY NOS	292		28	12	39	39		2		5	28	18	7	1		113
357.0 - AC INFECT POLYNEURITIS	4		2		2											
357.3 - NEUROPATHY IN MALIG DIS	1		1													
357.4 - NEUROPATHY IN OTHER DIS	6		2													4
357.5 - ALCOHOLIC POLYNEUROPATHY	5		3	1												1
357.6 - NEUROPATHY DUE TO DRUGS	3					2										1
357.7 - NEURPTHY TOXIC AGENT NEC	1															1
357.81 - CHR INFLAM POLYNEURITIS	4			1	1	1										1
357.82 - CRIT ILLNESS NEUROPATHY	4											1				3
358.00 - MYSTHNA GRVS W/O AC EXAC	13	1			4	2					1	1				4
358.1 - MYASTHENIA IN OTH DIS	5		3			1										1
359.1 - HERED PROG MUSC DYSTRPHY	5		1	1		3										
359.2 - MYOTONIC DISORDERS	1													1		
359.4 - TOXIC MYOPATHY	9							1		1		1				6
359.5 - MYOPATHY IN ENDOCRIN DIS	1															1
359.6 - INFL MYOPATHY IN OTH DIS	1															1
359.81 - CRITICAL ILLNESS MYOPTHY	20	2	1			1					1	1				14
359.89 - MYOPATHIES NEC	4		1		1						1					1
430 - SUBARACHNOID HEMORRHAGE	2										1					1
432.1 - SUBDURAL HEMORRHAGE	3	1										1				1
433.11 - OCL CRTD ART W INFRCT	1															1
433.91 - OCL ART NOS W INFRCT	1					1										
434.91 - CRBL ART OCL NOS W INFRC	27		4	1	1	4					5	1				11
437.2 - HYPERTENS ENCEPHALOPATHY	1															1
438.20 - LATE EF-HEMPLGA SIDE NOS	229	3	11	6	22	49		4			34	11	7	2		80
438.21 - LATE EF-HEMPLGA DOM SIDE	15		1	1	1	3					5					4
438.22 - LATE EF-HEMIPLGA NON-DOM	20		1	1	2				1		3		1			11

ICD-9 Codes	Total	03 Brain Dysfunction - Non-traumatic	06 Neurological Condition	07 Orthopedic - LE fracture	08 Orthopedic - LE joint replacement	09 Orthopedic - other	10 Amputation - LE	11 Amputation - other	12 Osteoarthritis	13 RA and other Arthritis	14 Cardiac	15 Pulmonary	16 Pain Syndromes	17 Major Multiple Trauma w/o BI or SCI	19 Guillain-Barre	20 Other disabling conditions
438.30 - LATE EF-MPLGA UP LMB NOS	3					1										2
438.40 - LTE EF-MPLGA LOW LMB NOS	3			1		1										1
438.41 - LTE EF-MPLGA LOW LMB DOM	1												1			
438.50 - LT EF OTH PARAL SIDE NOS	5				1						1	1				2
438.53 - LT EF OTH PARALS-BILAT	1															1
446.0 - POLYARTERITIS NODOSA	1															1
710.0 - SYST LUPUS ERYTHEMATOSUS	36		2	2	13	5			1	1	1	1	1			9
710.3 - DERMATOMYOSITIS	2		1													1
710.4 - POLYMYOSITIS	7		1	1	1	1				1						2
714.0 - RHEUMATOID ARTHRITIS	169		4	11	49	30		2	2	4	16	6	3	3		39
714.89 - INFLAMM POLYARTHROP NEC	1									1						
714.9 - INFLAMM POLYARTHROP NOS	2								1							1
715.11 - LOC PRIM OSTEOART-SHLDER	1					1										
715.15 - LOC PRIM OSTEOART-PELVIS	1												1			
715.16 - LOC PRIM OSTEOART-L/LEG	2					1										1
715.21 - LOC 2ND OSTEOARTH-SHLDER	21				13	1			1	3	3					
715.25 - LOC 2ND OSTEOARTH-PELVIS	6				4					1	1					
715.26 - LOC 2ND OSTEOARTHR-L/LEG	18				10	2			1	1		1				3
715.31 - LOC OSTEOARTH NOS-SHLDER	7				2	2					1	1				1
715.35 - LOC OSTEOARTH NOS-PELVIS	18				13						2					3
715.36 - LOC OSTEOARTH NOS-L/LEG	72		1	6	18	5				1	4	4	6			27
716.16 - TRAUM ARTHROPATHY-L/LEG	1				1											
716.51 - POLYARTHRITIS NOS-SHLDER	2					2										
716.55 - POLYARTHRITIS NOS-PELVIS	3				1											2
716.56 - POLYARTHRITIS NOS-L/LEG	1			1												
720.0 - ANKYLOSING SPONDYLITIS	1				1											
721.1 - CERV SPONDYL W MYELOPATH	10	1	1		1	3						1				3
721.41 - SPOND COMPR THOR SP CORD	1															1
721.42 - SPOND COMPR LUMB SP CORD	3					1							1			1
722.70 - DISC DIS W MYELOPATH NOS	1					1										
722.71 - CERV DISC DIS W MYELOPAT	2		1													1
722.73 - LUMB DISC DIS W MYELOPAT	3				1						1		1			
741.90 - SPINA BIFIDA	4			1	1	1										1
755.22 - LONGITUD DEFIC ARM NEC	1				1											
755.30 - REDUCTION DEFORM LEG NOS	1				1											
755.63 - CONG HIP DEFORMITY NEC	1				1											
756.59 - OSTEODYSTROPHY NEC	1					1										
806.00 - C1-C4 FX-CL/CORD INJ NOS	1		1													
806.4 - CL LUMBAR FX W CORD INJ	3					1			1					1		
806.60 - FX SACRUM-CL/CRD INJ NOS	1													1		
808.0 - FRACTURE ACETABULUM-CLOS	11			5	1	2					1			2		
808.43 - PELV FX-CLOS/PELV DISRUP	1				1											
820.01 - FX UP FEMUR EPIPHY-CLOS	1				1											
820.03 - FX BASE FEMORAL NCK-CLOS	1													1		
820.09 - FX FEMUR INTRCAPS NEC-CL	3											1		1		1
820.21 - INTERTROCHANTERIC FX-CL	1				1											
820.8 - FX NECK OF FEMUR NOS-CL	4					1								1		2
828.0 - FX LEGS W ARM/RIB-CLOSED	1															1
839.07 - DISLOC 7TH CERV VERT-CL	1		1													
839.20 - DISLOCAT LUMBAR VERT-CL	2					2										

ICD-9 Codes	Total	03 Brain Dysfunction - Non-traumatic	06 Neurological Condition	07 Orthopedic - LE fracture	08 Orthopedic - LE joint replacement	09 Orthopedic - other	10 Amputation - LE	11 Amputation - other	12 Osteoarthritis	13 RA and other Arthritis	14 Cardiac	15 Pulmonary	16 Pain Syndromes	17 Major Multiple Trauma w/o BI or SCI	19 Guillain-Barre	20 Other disabling conditions
850.5 - CONCUSSION W COMA NOS	1			1												
851.41 - CEREBELL CONTUS W/O COMA	1		1													
851.80 - BRAIN LACERATION NEC	1					1										
854.00 - BRAIN INJURY NEC	2					1										1
854.01 - BRAIN INJURY NEC-NO COMA	2			1										1		
854.06 - BRAIN INJ NEC-COMA NOS	1													1		
897.3 - AMPUT ABV KN, UNIL-COMPL	1															1
906.5 - LATE EFF HEAD/NECK BURN	1					1										
907.0 - LT EFF INTRACRANIAL INJ	7					2								2		3
907.2 - LATE EFF SPINAL CORD INJ	3					2					1					
946.3 - 3RD DEG BURN MULT SITE	1															1
952.05 - C5-C7 SPIN CORD INJ NOS	1		1													
952.15 - T7-T12 SPIN CORD INJ NOS	1					1										
952.9 - SPINAL CORD INJURY NOS	2										1					1
997.01 - SURG COMPLICATION - CNS	9					1					3	1	1			3
997.02 - IATROGEN CV INFARC/HMRHG	2				1						1					
997.62 - INFECTION AMPUTAT STUMP	2						1									1
997.69 - AMPUTAT STUMP COMPL NEC	1															1
V49.65 - STATUS AMPUT BELOW ELBOW	1													1		
V49.66 - STATUS AMPUT ABOVE ELBOW	1		1													
V49.73 - STATUS AMPUT FOOT	13				1			12								
V49.75 - STATUS AMPUT BELOW KNEE	42		1	3	2	7		2			5					22
V49.76 - STATUS AMPUT ABOVE KNEE	18				3	3		1			1					10

6/18/2007, RehabCare, PROMOS
Discharges from 1/1/06 thru 12/31/06

Appendix B

Outcomes by Rehabilitation Impairment Category

ARU/IRF All QCM Patients, all-payor
Discharges from 1/3/06 thru 12/31/06
Retrieved: 6/21/2007

	Pt #	RIC Share	ALOS	Avg AGE	Acute	SNF/LTC/REHAB	Home	Other
03 Brain Dysfunction - Non-traumatic	16	1%	12.3	67	1	2	13	
06 Neurological Condition	110	6%	11.8	69	7	12	90	1
07 Orthopedic - LE fracture	79	5%	13.2	74	6	12	60	1
08 Orthopedic - LE joint replacement	308	18%	10.2	69	7	24	276	1
09 Orthopedic - other	290	17%	12.6	73	19	53	217	1
10 Amputation - LE	1	0%	13.0	72			1	
11 Amputation - other	27	2%	12.2	65	9	2	16	
12 Osteoarthritis	9	1%	11.0	75	3	1	5	
13 Rheumatoid and other Arthritis	20	1%	11.9	79	3	3	14	
14 Cardiac	167	10%	11.5	76	26	20	120	1
15 Pulmonary	74	4%	12.1	74	7	13	53	1
16 Pain Syndromes	53	3%	11.5	73	2	7	42	2
17 Major Multiple Trauma w/o BI, SCI	21	1%	14.7	58	3	2	15	1
19 Guillain-Barre	4	0%	14.0	56			4	
20 Other disabling conditions	551	32%	12.4	74	68	66	405	12
Total	**1,730**	**100%**	**11.9**	**72**	**161**	**217**	**1,331**	**21**
					9%	13%	77%	1%

SNF - All MCR-A patients, 2006

	Pt #	RIC Share	ALOS	Avg AGE	Acute	SNF/LTC/REHAB	Home	Other
03 Brain Dysfunction - Non-traumatic	8	1%	22.8	83.5	2	4		2
06 Neurological Condition	99	8%	40.9	76.7	17	40	31	11
07 Orthopedic - LE fracture	55	4%	43.7	78.7	8	18	23	6
08 Orthopedic - LE joint replacement	33	3%	31.7	77.6	5	2	25	1
09 Orthopedic - other	410	32%	35.6	79.0	66	151	159	34
10 Amputation - LE	0							
11 Amputation - other	2	0%	60.0	69.5		1		1
12 Osteoarthritis	4	0%	38.0	83.8	1	1	2	
13 Rheumatoid and other Arthritis	8	1%	46.0	78.6	1	3	1	3
14 Cardiac	288	23%	33.4	76.4	73	116	73	26
15 Pulmonary	79	6%	37.2	78.6	16	37	19	7
16 Pain Syndromes	18	1%	23.7	80.5	4	7	6	1
17 Major Multiple Trauma w/o BI, SCI	0							
19 Guillain-Barre	0							
20 Other disabling conditions	267	21%	32.7	79.9	58	115	52	42
Total	**1271**	**100%**	**35.1**	**78.4**	**251**	**495**	**391**	**134**
					20%	39%	31%	11%

Appendix C

ARU/IRF Rationale for Medical Necessity

To establish that these patients would best benefit from an ARU/IRF environment, Rehabilitation Impairment Categories (RICs) were cross-referenced with ICD-9 codes that are utilized within skilled nursing facilities and that exist within Transmittal 938. The conditions requiring interventions specific to ARUs/IRFs are illustrated and expounded upon below.

The table below shows the RIC distribution of the ARU patients who qualified for 75% admission by their comorbid condition.

Rehabilitation Impairment Code	Total	Percent
03 Brain Dysfunction - Non-traumatic	16	1%
06 Neurological Condition	110	6%
07 Orthopedic - lower extremity fracture	79	5%
08 Orthopedic - lower extremity joint replacement	308	18%
09 Orthopedic - other	290	17%
10 Amputation - lower extremity	1	0%
11 Amputation - other	27	2%
12 Osteoarthritis	9	1%
13 Rheumatoid and other Arthritis	20	1%
14 Cardiac	167	10%
15 Pulmonary	74	4%
16 Pain Syndromes	53	3%
17 Major Multiple Trauma w/o brain or spinal injury	21	1%
19 Guillain-Barre Syndrome	4	0%
20 Other disabling conditions	551	32%
Total	1,730	100%

Rehabilitation Impairment Category	Matching ICD-9 Codes
01 - Stroke	342.90 UNSP HEMIPLGA UNSPF SIDE 342.91 UNSP HEMIPLGA DOMNT SIDE 342.92 UNSP HMIPLGA NONDMNT SDE 343.1 CONGENITAL HEMIPLEGIA 434.91 CRBL ART OCL NOS W INFRC 438.20 LATE EF-HEMPLGA SIDE NOS 438.21 LATE EF-HEMPLGA DOM SIDE 438.22 LATE EF-HEMIPLGA NON-DOM

The resulting signs and symptoms that are seen in the various clinical presentations of stroke are numerous and may include paresis or weakness, increased muscle tone, involuntary movements, cognitive deficits, sensory loss, bowel and bladder dysfunction, and emotional or behavioral issues. When these clinical manifestations are present along with a primary medical diagnosis, the ensuing weakness and spasticity may be amplified and, therefore, only intensive medical and rehabilitation intervention should be provided.

The medical issues that require the vigilant management of an inpatient rehabilitation team for patients suffering from stroke include, but are not limited to:

- Vital sign monitoring – After a stroke, fluctuations in blood pressures are common. In patients with significant vascular disease, hypoperfusion, episodes when the brain is not receiving adequate oxygen, can occur despite having an increased blood pressure. Failure to adjust medications immediately can aggravate the existing insult to the brain.
- Depression – This is one of the most common side effects of a stroke.[18] Release of cytotoxic substances from necrotic brain tissue has been shown to cause depression.[19] Timely prescription of an antidepressant medication[20] by a physiatrist will improve a patient's participation in rehabilitation and other social activities which are crucial to the patient's functional recovery.[21]
- Spasticity – As a patient progresses through the stages of motor recovery as outlined by Signe Brunnstrom[22], fluctuations in the degrees of spasticity are to be expected and can significantly affect the patient's ability to perform functional activities. Specific treatments include both pharmacologic and non-pharmacologic interventions that require advanced and specialized knowledge, training, and technology not often readily available in a skilled nursing facility.
- Bowel and bladder dysfunction – Bladder scanners are ubiquitous within ARUs/IRFs but in our experience are uncommon within skilled nursing facilities. Immediate access to this technology can significantly reduce the risk of developing urinary tract infections and allow patients to be discharged home with a continent bladder.[23] Also, close medical management of bowel dysfunction prevents serious complications like bowel obstruction and the need for surgical bowel resection.
- Dysphagia and dysarthria – these comorbidities require a multidisciplinary team to prevent complications such as aspiration pneumonia. In our experience, this type of care is less organized among skilled nursing facilities due to absence of formalized programs and varying levels of clinical skills among clinicians.[24]

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[21] Nannetti L, Paci M, Pasquini J, Lombardi B, Taiti PG. Motor and functional recovery in patients with post-stroke depression. Disabil Rehabil. 2005 Feb 18; 27(4):170-5.
[22] Sawner KA and Lavigne JM. Brunnstrom's Movement Therapy in Hemiplegia: A Neurophysiological Approach. Philadelphia: Lippincott Williams & Wilkins; 1992.
[23] Wu J, Baguley IJ. Urinary retention in a general rehabilitation unit: prevalence, clinical outcome, and the role of screening. Arch Phys Med Rehabil. 2005 Sep; 86(9):1772-7.
[24] Smith PA. Nutrition, hydration, and dysphagia in long-term care: Differing opinions on the effects of aspiration. J Am Med Dir Assoc. 2006 Nov; 7(9):545-9. Epub 2006 May 30.

Rehabilitation Impairment Category	Matching ICD-9 Codes
02 – Traumatic Brain Injury	851.41 CEREBELL CONTUS W/O COMA
03 – Nontraumatic Brain Injury	198.3 SEC MAL NEO BRAIN/SPINE 321.4 MENINGIT D/T SARCOIDOSIS 323.4 OTH ENCEPHALIT D/T INFEC 324.0 INTRACRANIAL ABSCESS 342.90 UNSP HEMIPLGA UNSPF SIDE 342.91 UNSP HEMIPLGA DOMNT SIDE 342.92 UNSP HMIPLGA NONDMNT SDE 343.4 - INFANTILE HEMIPLEGIA 348.1 ANOXIC BRAIN DAMAGE 348.8 BRAIN CONDITIONS NEC 349.82 TOXIC ENCEPHALOPATHY 432.1 SUBDURAL HEMORRHAGE 438.20 LATE EF-HEMPLGA SIDE NOS 438.21 LATE EF-HEMPLGA DOM SIDE 438.22 LATE EF-HEMIPLGA NON-DOM 854.00 BRAIN INJURY NEC

In the aftermath of traumatic or non-traumatic brain injury, one may observe the following in the patient: paresis or weakness, abnormal muscle tone, involuntary movement, cognitive disorders, sensory impairment, bowel and bladder dysfunction, and emotional or behavioral problems. When brain injury is accompanied by a primary medical diagnosis, the resulting clinical picture can notably and adversely affect the patient's ability to perform motor tasks and activities of daily living (ADLs), and intensive medical and rehabilitation efforts are then a necessity.

In relation to traumatic brain injury, the medical considerations that warrant the close management of an inpatient rehabilitation team include, but are not limited to:

- Regulation of sleep/wake cycles – this regulation is vital to the patient's functional recovery.[25] Agitation and confusion can be decreased exponentially when sleep/wake cycles are in sync.[26] Availability of, and access to, Schedule II medications such as Ritalin (methylphenidate) are more commonplace within ARUs/IRFs compared with skilled nursing facilities, due to the persistent and consistent presence of a physiatrist.

[25] Valente M, Placidi F, Oliveira AJ, Bigagli A, Morghen I, Proietti R, Gigli GL. Sleep organization pattern as a prognostic marker at the subacute stage of post-traumatic coma. Clin Neurophysiol. 2002 Nov; 113(11):1798-805.

[26] Kim YH, Ko MH, Na SY, Park SH, Kim KW. Effects of single-dose methylphenidate on cognitive performance in patients with traumatic brain injury: a double-blind placebo-controlled study. Clin Rehabil. 2006 Jan; 20(1):24-30.

- Abnormal tone and posturing – Patients with traumatic brain injuries often present with abnormal tone and posturing, such as decorticate or decerebrate positions. Successful management of these clinical presentations requires a comprehensive, interdisciplinary brain injury program not often available within the skilled nursing environment.
- Dysphagia and dysarthria – these comorbidities are found in this patient category, and the notations concerning the care of these comorbidities found above also serve well here.

While non-traumatic brain-injured patients may also experience the problems cited above, those with the following conditions are also best served by the level of care that can only be furnished in an ARU/IRF:

- Patients with intracranial abscesses require the use of intravenous antibiotics multiple times per day as well as frequent neurological evaluations to assess for sudden declines in the patient's mental status. Both interventions cannot be effectively implemented within a skilled nursing facility.
- Patients with toxic encephalopathy necessitate constant monitoring and management of multiple system organ involvement. This level of care cannot be safely provided within a skilled nursing facility due to inconsistent and less frequent physician[27] and nursing[28] presence.

Rehabilitation Impairment Category	Matching ICD-9 Codes
04 – Traumatic spinal cord injury	344.00 QUADRIPLEGIA, UNSPECIFD 344.09 OTHER QUADRIPLEGIA 344.1 PARAPLEGIA NOS 907.2 LATE EFF SPINAL CORD INJ 952.05 C5-C7 SPIN CORD INJ NOS 952.15 T7-T12 SPIN CORD INJ NOS 952.9 SPINAL CORD INJURY NOS
05 – Nontraumatic spinal cord injury	094.0 TABES DORSALIS 198.3 SEC MAL NEO BRAIN/SPINE 336.9 SPINAL CORD DISEASE NOS 324.1 INTRASPINAL ABSCESS 344.00 QUADRIPLEGIA, UNSPECIFD 344.09 OTHER QUADRIPLEGIA 344.1 PARAPLEGIA NOS 721.1 CERV SPONDYL W MYELOPATH 721.42 SPOND COMPR LUMB SP CORD 907.2 LATE EFF SPINAL CORD INJ 952.9 SPINAL CORD INJURY NOS

[27] Levin JR, Wenger NS, Ouslander JG, Zellman G, Schnelle JF, Buchanan JL, Hirsch SH, Reuben DB. Life-sustaining treatment decisions for nursing home residents: who discusses, who decides and what is decided? J Am Geriatr Soc. 1999 Jan;47(1):82-7.

[28] Zhang NJ, Unruh L, Liu R, Wan TT. Minimum nurse staffing ratios for nursing homes. Nurs Econ. 2006 Mar-Apr;24(2):78-85, 93, 55.

Traumatic spinal cord injuries present a myriad of issues, such as patient and family education surrounding the diagnosis and its implications, the patient's psychosocial state, the family's coping mechanisms, paresis or paralysis, loss of sensation, skin integrity, bowel and bladder functioning, and sexual and reproductive functioning. Due to the complexity of these conditions, an inpatient rehabilitation level of stay is the most appropriate, for only in this setting are there formalized programs and/or coordination of care readily available to prevent any resulting complications. These complications make patients' rehabilitation more difficult and limit their self-care independence, and the treatment of such complications is very expensive.[29]

Some of the more pressing medical concerns surrounding this patient group that mandate this group be cared for in the ARU/IRF are below.

- Autonomic dysreflexia - in an individual with a T8 or higher injury, the rehabilitation team's ability to recognize and treat autonomic dysreflexia is critical and could mean the difference between life and death.[30] [31] Without formalized training and programs such as those present in inpatient rehabilitation facilities, clinical staff training on autonomic dysreflexia is often deficient.[32]
- Bowel and bladder dysfunction – Treatment of bowel and bladder dysfunction within the spinal cord injury population is markedly different than for typical geriatric patients within a skilled nursing facility setting. This patient population requires specialized programs and technology such as bladder scanners to prevent urinary tract infections[33] and allow patients to be discharged home continent of bladder. As was also true for those who had experienced a stroke, close medical management of bowel dysfunction helps prevent serious complications like bowel obstruction and the need for surgical bowel resection.
- Spasticity - As motor recovery occurs, changes in muscle tonicity are anticipated and can bear directly upon the patient's functional status. As was noted for those patients in the stroke category, treatments include both pharmacologic and non-pharmacologic interventions that demand advanced and specialized knowledge, training, and technology not often readily accessible in a skilled nursing facility. Spasticity-related interventions need to be aimed at what matters most to the patient. It is critical for clinicians to understand the patients' experiences to make accurate assessments, effectively evaluate treatment interventions, and select appropriate management strategies. When providers reconfigure the patients' descriptions to fit neatly with a biomedical understanding of spasticity without

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[29] Drigotaite N, Krisciūnas A. [Complications after spinal cord injuries and their influence on the effectiveness of rehabilitation] Medicina (Kaunas). 2006;42(11):877-80.
[30] Dolinak D, Balraj E. Autonomic Dysreflexia and Sudden Death in People With Traumatic Spinal Cord Injury. Am J Forensic Med Pathol. 2007 Jun;28(2):95-98.
[31] Khastgir J, Drake MJ, Abrams P. Recognition and effective management of autonomic dysreflexia in spinal cord injuries. Expert Opin Pharmacother. 2007 May;8(7):945-56.
[32] Krassioukov AV, Furlan JC, Fehlings MG. Autonomic dysreflexia in acute spinal cord injury: an under-recognized clinical entity. J Neurotrauma. 2003 Aug;20(8):707-16.
[33] Wu J, Baguley IJ. Urinary retention in a general rehabilitation unit: prevalence, clinical outcome, and the role of screening. Arch Phys Med Rehabil. 2005 Sep;86(9):1772-7.

carefully assessing the descriptions in terms of what matters most to patients, a potential risk for misappropriating interventions may arise.[34]

Patients with non-traumatic spinal cord injury may well experience the same problematic signs and symptoms of those encountered by traumatic spinal cord-injured patients (e.g. – spasticity, bowel and bladder dysfunction). Additional commentary is offered now for certain patients in the non-traumatic spinal cord group.

- For patients with tabes dorsalis, there are a number of neurological manifestations as well as the need for infectious disease consultation[35] that would not be readily available in a skilled nursing facility. Patients with this condition lose position sense and experience symptoms and signs such as weakness, diminished reflexes, unsteady gait, progressive degeneration of the joints, loss of coordination, episodes of intense pain and disturbed sensation, personality changes, dementia, deafness, visual impairment, and impaired response to light. The gravity and complexity of these problems demand close physician management and treatment by a highly skilled interdisciplinary rehabilitation team.
- Patients suffering from the late effects of polio experience significant impairments brought about by the post-polio syndrome. These include a marked reduction in muscle strength, high frequency and degree of fatigue, widespread pain, shortness of breath, and difficulties in performing activities of daily living.[36] In addition, recurrence of symptoms and fear of reactivation of the polio virus is particularly distressing to polio survivors.[37] Research has shown that these impairments are often magnified when combined with other medical conditions, the compound effect of which can negatively affect functional independence and perceived functioning.[38] Hence, these patients require a more formalized and organized therapeutic regimen that in our experience can only be provided within an ARU/IRF.

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[34] Mahoney JS, Engebretson JC, Cook KF, Hart KA, Robinson-Whelen S, Sherwood AM. Spasticity experience domains in persons with spinal cord injury. Arch Phys Med Rehabil. 2007 Mar;88(3):287-94.
[35] Rodgers CA, Murphy S. Diagnosis of neurosyphilis: appraisal of clinical caseload. Genitourin Med. 1997 Dec;73(6):528-32.
[36] Hildegunn L, Jones K, Grenstad T, Dreyer V, Farbu E, Rekand T. Perceived disability, fatigue, pain and measured isometric muscle strength in patients with post-polio symptoms. Physiother Res Int. 2007 Mar;12(1):39-49.
[37] Khan F. Rehabilitation for postpolio sequelae. Aust Fam Physician. 2004 Aug;33(8):621-4.
[38] Stolwijk-Swuste JM, Beelen A, Lankhorst G, Nollet F; the CARPA study group. Impact of age and co-morbidity on the functioning of patients with sequelae of poliomyelitis: a cross-sectional study. J Rehabil Med. 2007 Jan;39(1):56-62.

Rehabilitation Impairment Category	Matching ICD-9 Codes
06 – Neurological conditions	334.1 HERED SPASTIC PARAPLEGIA 344.31 MONPLGA LWR LMB DMNT SDE 344.32 MNPLG LWR LMB NONDMNT SD 344.60 CAUDA EQUINA SYND NOS 353.1 LUMBOSACRAL PLEX LESION 332.0 PARALYSIS AGITANS 332.1 SECONDARY PARKINSONISM 333.0 DEGEN BASAL GANGLIA NEC 343.9 CEREBRAL PALSY NOS 343.8 CEREBRAL PALSY NEC 340 MULTIPLE SCLEROSIS 353.0 BRACHIAL PLEXUS LESIONS 353.8 NERV ROOT/PLEXUS DIS NEC 354.5 MONONEURITIS MULTIPLEX 356.2 HERED SENSORY NEUROPATHY 356.4 IDIO PROG POLYNEUROPATHY 356.9 IDIO PERIPH NEURPTHY NOS 357.3 NEUROPATHY IN MALIG DIS 357.4 NEUROPATHY IN OTHER DIS 357.5 ALCOHOLIC POLYNEUROPATHY 357.7 POLYNEURPTHY TOXIC AGENT NEC 358.00 MYSTHNA GRVS W/O AC EXAC 358.1 MYASTHENIA IN OTH DIS 359.1 HERED PROG MUSC DYSTRPHY 359.5 MYOPATHY IN ENDOCRIN DIS 359.89 MYOPATHIES NEC

Patients in this category have unique medical problems that call for the degree of medical and rehabilitative management seen only in ARU/IRF sites. A discussion of these conditions and the rationale that supports an ARU/IRF level of care follows.

- Depending on the nature of the lesion involving the lumbosacral plexus, various comorbid conditions may present with severe gravity and seriousness of symptoms that can only be safely and adequately managed by an interdisciplinary rehabilitation team and with access to the consistent and persistent presence of a physiatrist and rehabilitation nurse. For instance, cauda equina syndrome is a rare, but serious, consequence of lumbar disc prolapse and can have devastating long-lasting neurologic consequences.[39] Other causes include tumors, infections, fractures, and narrowing of the spinal canal. Patients with this syndrome experience motor weakness, bowel and bladder dysfunction, sensory loss, and sexual dysfunction. Research data strongly support the management of cauda

[39] McCarthy MJ, Aylott CE, Grevitt MP, Hegarty J. Cauda equina syndrome: factors affecting long-term functional and sphincteric outcome. Spine. 2007 Jan 15;32(2):207-16.

equina syndrome from lumbar disc herniation as a diagnostic and surgical emergency.[40] This level of care is not available in skilled nursing facilities.

- Neuropathies can be extraordinarily challenging for patients on a number of levels. Sensory loss, paresthesias or abnormal sensations, muscle wasting and weakness, and pain all present obstacles for patients with neuropathies. The presence of these comorbid conditions amplifies the barriers to recovery, as the patients are also working toward functional recovery from a primary medical diagnosis. This is the case among patients with critical illness neuropathies, wherein evidence supports the need for intensive medical care and physical rehabilitation[41] which, again, can only be sufficiently provided within an ARU/IRF.
- Patients with myasthenia gravis exhibit various signs and symptoms that may include weakness, dysphagia, and dysarthria. The resulting impairment and disability depends on which muscles are affected. When respiratory and trunk muscles are compromised, difficulty in breathing can ensue.[42] Involvement of the trunk and limb muscles result in postural and gait instability which can predispose the patient to falls and injury.[43] Evolution of this disease process is characterized by remissions and exacerbations, and the goal of treatment is a complete remission, which implies a sustained collaboration among members of the interdisciplinary rehabilitation team, including close physician supervision for medical management.[44] Due to the complexity of this condition, adequate and safe care can only be provided within an ARU/IRF, as we understand that this diagnosis is often overlooked in skilled nursing settings.[45]
- Myopathies involve muscle weakness that requires continuous medical monitoring, especially when compounded by a primary medical condition. The term "myopathy" is a more global term and can imply a muscular dystrophy, dermatomyositis, polymyositis, or drug-induced myopathy, among other conditions. The treatment for the myopathy depends upon its cause and can involve multiple organ systems. Thus, involvement of specialized medical professionals is critical to the interdisciplinary rehabilitation team.[46] [47] This level of access can only be adequately realized within an ARU/IRF.

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[40] Shapiro S. Medical realities of cauda equina syndrome secondary to lumbar disc herniation. Spine. 2000 Feb 1;25(3):348-51.

[41] Jarrett SR, Mogelof JS. Critical illness neuropathy: diagnosis and management. Arch Phys Med Rehabil. 1995 Jul;76(7):688-91.

[42] Gilchrist JM. Overview of neuromuscular disorders affecting respiratory function. Semin Respir Crit Care Med. 2002 Jun;23(3):191-200.

[43] Chua E, McLoughlin C, Sharma AK. Myasthenia gravis and recurrent falls in an elderly patient. Age Ageing. 2000 Jan;29(1):83-4.

[44] Dunand M, Lalive PH, Vokatch N, Kuntzer T. [Myasthenia gravis: treatments and remissions] Rev Med Suisse. 2007 May 9;3(110):1185-6, 1188-90.

[45] Smith RL. Unusual weakness in nursing home residents--don't forget myasthenia gravis. J Am Med Dir Assoc. 2002 Sep-Oct;3(5):322-3.

[46] Hughes RA. Management of acute neuromuscular paralysis. J R Coll Physicians Lond. 1998 May-Jun;32(3):254-9.

[47] Abe K. [Rehabilitation for myositis in acute phase] Brain Nerve. 2007 Apr;59(4):431-4.

- In the management of Parkinson's disease, secondary Parkinsonism, and multiple sclerosis, there are multiple medications frequently used that require close titration and have significant side effects that require medical management. The physician oversight available in a skilled nursing facility[48] is inadequate to safely implement these regimens.
- Patients with significant neurologic disease processes causing spasticity can benefit from medications such as Botox (botulinum toxin) administered by a rehabilitation physician.[49] Concurrently, it is also important that the patient receive intensive physical rehabilitation to maximize treatment outcomes.[50] This therapeutic regimen is best implemented in an inpatient rehabilitation facility, where constant and persistent physician presence and continuous ongoing communication among members of the rehabilitation team are in place.

Rehabilitation Impairment Category	Matching ICD-9 Codes
07 – Fracture of lower extremity	808.0 FRACTURE ACETABULUM-CLOS 820.09 FX FEMUR INTRCAPS NEC-CL 820.21 INTERTROCHANTERIC FX-CL 820.8 FX NECK OF FEMUR NOS-CL
09 – Other orthopedic	755.30 REDUCTION DEFORM LEG NOS 756.59 OSTEODYSTROPHY NEC 839.07 DISLOC 7th CERV VERT – CL

The gravity of a hip fracture cannot be ignored, and it calls for the following commentary:

A hip fracture is a serious injury, especially for older adults, and the complications can be life-threatening.[51] The morbidity and mortality rates associated with hip fracture have been well-documented. Research evidence demonstrates that the 30 day mortality rate after a hip fracture was 9.6% and the one year mortality rate was 33%.[52] Therefore, it is critical that patients who have sustained a hip fracture, either as a primary medical or comorbid condition, receive comprehensive, multi-disciplinary rehabilitation

[48] Levin JR, Wenger NS, Ouslander JG, Zellman G, Schnelle JF, Buchanan JL, Hirsch SH, Reuben DB. Life-sustaining treatment decisions for nursing home residents: who discusses, who decides and what is decided? J Am Geriatr Soc. 1999 Jan;47(1):82-7.
[49] Alajbegović A, Mehmedika-Suljić E, Alajbegović S. [Botulinum toxin in spasm treatment in adults] Med Arh. 2006;60(1):56-8.
[50] Hesse S, Werner C, Bardeleben A, Brandl-Hesse B. Management of upper and lower limb spasticity in neuro-rehabilitation. Acta Neurochir Suppl. 2002;79:117-22.
[51] Mayo Clinic Senior Health. Hip Fracture. Available at: http://www.mayoclinic.com/health/hip-fracture/DS00185
[52] Roche JJ, Wenn RT, Sahota O, Moran CG. Effect of comorbidities and postoperative complications on mortality after hip fracture in elderly people: prospective observational cohort study. BMJ. 2005 Dec 10;331(7529):1374. Epub 2005 Nov 18.

intervention.[53] The appropriate clinical setting is also vital to achieving optimum treatment outcomes. Two research investigations have demonstrated that, when patients were matched for age, gender, operative diagnosis, and admission ambulation FIM, those who received rehabilitation in an inpatient rehabilitation facility had, on average, a shorter length of stay and superior functional outcomes than those treated in skilled nursing facilities[54]; they were also more likely to attain 95% or more of prefracture functional status. [55]

Additional dialogue is presented below in relation to some of the medical complications that can arise from the conditions cited above and that we believe require the attention and management of an inpatient rehabilitation team.

- Postoperative anemia - anemia is a common postoperative complication after hip fracture reduction surgery, and its incidence increases with age.[56] Medical management often necessitates a packed red blood cell transfusion and pharmacological agents such as Erythropoetin and Aranesp, which cannot be safely and adequately implemented within a skilled nursing facility due to cost and staffing issues. In addition, evidence exists that anemia can predispose the patient to falls and injury.[57]
- Deep Venous Thrombosis (DVT) prophylaxis – prophylactic treatment is warranted among all hip fracture surgery patients due to the high incidence of postoperative DVT.[58] Initiation of thrombolytic medications such as coumadin requires close medical supervision, and hypercoagulation, which can delay wound closure, is common during this process. When patients require the medical necessity that justifies inpatient rehabilitation, then this procedure can only be safely implemented within an inpatient rehabilitation facility where immediate access to a physician is available.
- Severe malnutrition - malnutrition is prevalent among post-operative elderly patients.[59] Caloric and protein malnutrition are associated with a worse functional recovery among elderly patients with hip fracture.[60] These patients will benefit

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[53] Stenvall M, Olofsson B, Nyberg L, Lundström M, Gustafson Y. Improved performance in activities of daily living and mobility after a multidisciplinary postoperative rehabilitation in older people with femoral neck fracture: a randomized controlled trial with 1-year follow-up. J Rehabil Med. 2007 Apr;39(3):232-8.
[54] Munin MC, Seligman K, Dew MA, Quear T, Skidmore ER, Gruen G, Reynolds CF 3rd, Lenze EJ. Abstract Effect of rehabilitation site on functional recovery after hip fracture. Arch Phys Med Rehabil. 2005 Mar;86(3):367-72.
[55] Munin MC, Begley A, Skidmore ER, Lenze EJ. Influence of rehabilitation site on hip fracture recovery in community-dwelling subjects at 6-month follow-up. Arch Phys Med Rehabil. 2006 Jul;87(7):1004-6.
[56] Kajikawa S, Suzuki M, Yokoi M. [Preoperative complications and intraoperative hemodynamic changes in very old patients with femoral neck fractures] Masui. 2000 Sep;49(9):995-9.
[57] Dharmarajan TS, Norkus EP. Mild anemia and the risk of falls in older adults from nursing homes and the community. J Am Med Dir Assoc. 2004 Nov-Dec;5(6):395-400.
[58] Hardwick ME, Colwell CW. Advances in DVT prophylaxis and management in major orthopaedic surgery. Surg Technol Int. 2004;12:265-8.
[59] Symeonidis PD, Clark D. Assessment of malnutrition in hip fracture patients: effects on surgical delay, hospital stay and mortality. Acta Orthop Belg. 2006 Aug;72(4):420-7.
[60] Montero Pérez-Barquero M, García Lázaro M, Carpintero Benítez P. [Malnutrition as a prognostic factor in elderly patients with hip fractures.] Med Clin (Barc). 2007 May 19;128(19):721-5.

from a more comprehensive rehabilitation team approach seen in ARUs/IRFs, where access to nutritionists and dieticians is easily attained.

- Pain management with narcotic medication in the elderly – because of decreasing liver function among elderly patients, the use of narcotic medications is complicated postoperatively.[61] Narcotic medication is often titrated downwards prior to discharge, and the symptoms of narcotic withdrawal can arise. Administration of Schedule IV narcotics can give rise to potential toxicity and adverse reactions. Close medical supervision, which is often not available in skilled nursing facilities, is warranted in this instance to ensure patient safety.

Rehabilitation Impairment Category	Matching ICD-9 Codes
10 – Amputation, lower extremity	V49.73 STATUS AMPUT FOOT V49.75 STATUS AMPUT BELOW KNEE V49.76 STATUS AMPUT ABOVE KNEE

Loss of part of the lower limb affects the patient's functional status and quality of life.[62] When present as a comorbid condition, it can have a significant effect on the patient's long term mortality, especially when there are accompanied risk factors such as female gender, high-level amputation, cerebrovascular accident, congestive heart failure, and non ambulation.[63] In addition, overall weakness and edema resulting from acute hospitalization can prevent the utilization of the patient's prosthetic device, which demands increased energy expenditure.[64] These issues are best addressed in an ARU/IRF, where they can be safely and adequately managed due to access to clinicians with specialized skills and knowledge and access to technology.

Comprehensive post amputation wound and residual limb management also demands the specialized environment of an ARU/IRF. Wound management after an amputation requires specific training in infection management, in shaping the residual limb-prosthesis interface, and in an understanding of the long-term outcomes of a residual limb healing. The basic prerequisite for successful use of a prosthesis is an adequately shaped stump.[65] These interventions require the skills of a well-coordinated and highly capable interdisciplinary rehabilitation team.

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[61] Wilder-Smith OH. Opioid use in the elderly. Eur J Pain. 2005 Apr;9(2):137-40.
[62] Poljak-Guberina R, Zivković O, Muljacić A, Guberina M, Bernt-Zivković T. The amputees and quality of life. Coll Antropol. 2005 Dec;29(2):603-9.
[63] Wong MW. Predictors for mortality after lower-extremity amputations in geriatric patients. Am J Surg. 2006 Apr;191(4):443-7.
[64] Schmalz T, Blumentritt S, Jarasch R. Energy expenditure and biomechanical characteristics of lower limb amputee gait: the influence of prosthetic alignment and different prosthetic components. Gait Posture. 2002 Dec;16(3):255-63.
[65] Poljak-Guberina R, Zivković O, Muljacić A, Guberina M, Bernt-Zivković T. The amputees and quality of life. Coll Antropol. 2005 Dec;29(2):603-9.

Rehabilitation Impairment Category	Matching ICD-9 Codes
12 – Osteoarthritis	715.11 LOC PRIM OSTEOART-SHLDER 715.16 LOC PRIM OSTEOART-L/LEG 715.21 LOC 2ND OSTEOARTH-SHLDER 715.26 LOC 2ND OSTEOARTHR-L/LEG 715.31 LOC OSTEOARTH NOS-SHLDER 715.35 LOC OSTEOARTH NOS-PELVIS 715.36 LOC OSTEOARTH NOS-L/LEG 716.51 POLYARTHRITIS NOS-SHLDER

Osteoarthritis is one of the most common forms of musculoskeletal disorders and incurs significant economic, social, and psychological costs. It increases in prevalence and also progresses with aging. It is characterized by joint pain, stiffness after immobility, and limitation of movement.[66] When compounded by a primary medical condition, these signs and symptoms are magnified and can certainly affect functional recovery and return to premorbid living conditions.[67] Due to the resulting medical complexity of compounded conditions, we believe that an ARU/IRF stay is the optimal choice, for there coordinated and organized programs and care exist to prevent any further complications.

Although there are other medical needs of this patient population that require the careful management and watch of an inpatient rehabilitation team, two key concerns are noted now.

- Pain management with narcotic medication in the elderly – this patient population may very well undergo surgical intervention due to the presence of the condition. Comments made above on the management of narcotic medication for the elderly are applicable here, too.
- Use of hyaluronic acid in the management of osteoarthritis - the use of hyaluronic acid is supported by research evidence and has been shown to relieve pain and improve function.[68] Continuous communication between the physician and the rest of the rehabilitation team is crucial to maximize treatment outcomes.

Rehabilitation Impairment Category	Matching ICD-9 Codes
13 – Rheumatoid, other arthritis	359.89 MYOPATHIES NEC 710.3 DERMATOMYOSITIS 714.0 RHEUMATOID ARTHRITIS 714.89 INFLAMM POLYARTHROP NEC

[66] Bijlsma JW, Knahr K. Strategies for the prevention and management of osteoarthritis of the hip and knee. Best Pract Res Clin Rheumatol. 2007 Feb;21(1):59-76.
[67] Caporali R, Cimmino MA, Sarzi-Puttini P, Scarpa R, Parazzini F, Zaninelli A, Ciocci A, Montecucco C. Comorbid conditions in the AMICA study patients: effects on the quality of life and drug prescriptions by general practitioners and specialists. Semin Arthritis Rheum. 2005 Aug;35(1 Suppl 1):31-7.
[68] Dagenais S. Intra-articular hyaluronic acid (viscosupplementation) for hip osteoarthritis. Issues Emerg Health Technol. 2007 May;(98):1-4.

Rheumatoid arthritis is a chronic, systemic, inflammatory disease. It is often progressive and results in pain, stiffness, and swelling of the joints. In late stages of the disease process, deformities and postural abnormalities can develop.[69] In addition, patients can also experience serious psychological distress.[70] Thus, only a comprehensive rehabilitation program which addresses physical and mental impairments can best serve these patients. This degree of intervention is often not possible within a skilled nursing facility, where access to mental health professionals is often limited.[71] The conditions listed are further exacerbated when compounded with a primary medical condition[72], and the patient's functional status and recovery are consequently very much affected.

Though not exclusive, two of the most pressing medical problems in this patient group that also command the services of the interdisciplinary team of an ARU/IRF are as follows:

- Pain management with narcotic medication in the elderly – Once again, these patients may need to have surgery due to the presence of these conditions. The statements made previously concerning narcotic medication in the elderly hold true here as well.
- In the management of rheumatoid arthritis, there are multiple medications frequently used that require close titration and have significant side effects that require medical management. The physician oversight available in a skilled nursing facility[73] is inadequate to safely implement these regimens.

Rehabilitation Impairment Category	Matching ICD-9 Codes
20 – Miscellaneous	343.1 CONGENITAL HEMIPLEGIA 741.90 SPINA BIFIDA 755.22 LONGITUD DEFIC ARM NEC 755.63 CONG HIP DEFORMITY NEC 997.01 SURG COMPLICATION - CNS

Patients with congenital conditions listed above experience a wide array of signs and symptoms that result in varying degrees of disability. When compounded by the presence of a primary medical condition, the impairments brought about by the congenital condition are magnified and directly affect the patient's ability for functional recovery. Additionally, comments made above that speak to post-operative anemia, DVT prophylaxis, and pain management with narcotic medication in the aged population,

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[69] King RW. Arthritis, Rheumatoid. Emedicine. Available at: http://www.emedicine.com/emerg/topic48.htm

[70] Shih M, Hootman JM, Strine TW, Chapman DP, Brady TJ. Serious psychological distress in U.S. adults with arthritis. J Gen Intern Med. 2006 Nov;21(11):1160-6. Epub 2006 Jul 19.

[71] Shea DG, Streit A, Smyer MA. Determinants of the use of specialist mental health services by nursing home residents. Health Serv Res. 1994 Jun;29(2):169-85.

[72] Westhoff G, Weber C, Zink A. [Comorbidity in rheumatoid arthritis of early onset. Effects on outcome parameters] Z Rheumatol. 2006 Oct;65(6):487-8, 490-4, 496.

[73] Levin JR, Wenger NS, Ouslander JG, Zellman G, Schnelle JF, Buchanan JL, Hirsch SH, Reuben DB. Life-sustaining treatment decisions for nursing home residents: who discusses, who decides and what is decided? J Am Geriatr Soc. 1999 Jan;47(1):82-7.

apply here for any post surgical intervention occurring in this grouping of conditions. Patients can therefore present with an array of medical and functional abnormalities that require the concentration of a closely integrated rehabilitative team.

Rehabilitation Impairment Category	Matching ICD-9 Codes
21 – Burns	906.5 LATE EFF HEAD/NECK BURN

The goals of burn rehabilitation are to achieve wound healing, functional recovery, and good cosmetic results.[74] The pain, stiffness, weakness, loss of ROM, and joint deformity that can accompany a burn can profoundly limit function. When compounded by the presence of a primary medical condition, the impairments brought about by the previous burn condition, such as scar tissue and nerve damage, may be amplified and, therefore, the patient's ability for maximum functional recovery is at greater risk.

There is little doubt that burn management calls for the care of a highly specialized team. Burn management, in conjunction with management of the sequelae of another primary medical condition, must therefore demand the services of an intensely integrated rehabilitation team found only at the ARU/IRF level of care. What follows are only two of a number of issues in burn management that mandate the attention of various members of such a team.

- Contracture management – The development of contractures is a common complication after burn injuries.[75] Early and appropriate intervention is necessary to prevent further complications.
- Pain management - Patients often require Schedule II narcotics such as OxyContin (oxycodone HCl controlled-release), Methadone, and Duragesic patches (Fentanyl Transdermal). Availability of, and access to, these Schedule II medications are more commonplace within ARUs/IRFs than in skilled nursing facilities, due to the persistent and consistent presence of a physiatrist.

[74] Selvaggi G, Monstrey S, Van Landuyt K, Hamdi M, Blondeel P. Rehabilitation of burn injured patients following lightning and electrical trauma. NeuroRehabilitation. 2005;20(1):35-42.
[75] Vehmeyer-Heeman M, Lommers B, Van den Kerckhove E, Boeckx W. Axillary burns: extended grafting and early splinting prevents contractures. J Burn Care Rehabil. 2005 Nov-Dec;26(6):539-42.