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Long-Term Care Hospital (LTCH) Project Approach

Phase I Report

DRAFT

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PHASE I REPORT

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SECTION 1
INTRODUCTION

1.1 Overview of the Project Purpose

This project, "Long Term Care Hospital (LTCH) Payment System Refinement/Evaluation," is intended to assist the Centers for Medicare and Medicaid Services (CMS) in developing criteria for assuring appropriate and cost-effective use of LTCHs in the Medicare program. The Medicare Payment Advisory Commission (MedPAC) recommended that CMS develop patient and facility-level criteria to identify and distinguish the role of these hospitals as a Medicare provider. This project will evaluate the feasibility of the criteria that were recommended in MedPAC's June 2004 report to Congress. CMS is particularly interested in the distinctions between LTCHs' and other acute care hospitals' services to patients.

1.2 The Project Approach

This project will be completed in two phases. Phase I is analyzing existing data to examine what is known about LTCHs' current role in the Medicare system – their history as Medicare participating providers, the types of patients they treat, the criteria Quality Improvement Organizations (QIO) use to determine the appropriateness of treatment in these settings, and where these patients are treated in areas that lack LTCHs. This phase is based on secondary review of prior analyses of these issues as well as preliminary discussions with MedPAC, other researchers, and the QIOs.

Building on the work in Phase I, this project will continue in Phase II by carrying out the analysis to address the feasibility of MedPAC's proposed criteria and making recommendations to CMS regarding a plan to improve the LTCH PPS. MedPAC proposed both patient-level and facility-level criteria as a means of identifying when LTCHs are the appropriate provider.

LTCHs are the only Medicare participating provider that is distinguished by a length of stay criterion. These hospitals are acute care hospitals; their only distinction currently is that the average length of stay (LOS) is, on average, 25 days or longer. However, the methodology used to pay them has differed from other acute care hospitals since 1983 when Medicare established the Inpatient Prospective Payment System (IPPS). IPPS rates were set on the basis of average costs per case for each diagnosis. While the IPPS included adjustments to recognize a small percent of extraordinary high cost or long length of stay outlier cases, these payments were intended to offset extraordinary costs, not reflect consistently higher cost types of cases. LTCHs were excluded from the IPPS in recognition that the cases they treated had systematically longer lengths of stay, and therefore, higher costs than others typically treated in the inpatient acute care setting. However, no analyses were ever done to identify clinically homogeneous populations treated in these hospitals.

In contrast, when inpatient rehabilitation facilities (IRF) were excluded from the IPPS, Medicare set certification rules that identified these facilities through the types of cases they treated. Even today, 50-75 percent of all admissions to IRFs must be within 13 rehabilitation-related diagnoses for a hospital to qualify as an IRF (section 412.23 (b)(2). While this rule is often criticized by the industry as not recognizing changes in case mix that have occurred as

medical technology and other practice patterns evolve, it does identify a clear set of patients for which IRFs are considered specialized providers.

LTCHs have no similar distinguishing characteristic other than the longer length of stay. This was supported in more recent analysis to develop a case-mix system for LTCHs. The final LTCH PPS system uses the same case-mix groups as the IPPS. The weights for these groups are adjusted to reflect the relative difference in costliness of these cases within LTCHs, but the case groups are the same as those found in other acute hospitals. This difference reflects the medical complexity of the LTCH patients relative to IPPS admissions but also the similarities in the types of conditions treated in the two settings.

This project is intended to provide CMS information that will allow them to develop criteria for distinguishing LTCHs from other acute care hospitals. MedPAC (2004) recommended developing a set of patient-level characteristics for identifying appropriate cases, including those based on:

- National admission and discharge criteria;
- Clinical complexity as measured as a need for a minimum level of nursing care; and
- Patient mix and severity that could ensure that LTCH are treating patients who are severely ill at admission as evidenced by diagnostic categories and appropriate severity measures.

They also recommended facility-level criteria, such as establishing national, standardized:

- Patient review processes;
- Patient assessment tools;
- Mandated levels of daily physician availability;
- Multidisciplinary treatment teams; and
- Average Medicare LOS greater than 25 days.

MedPAC also recommended using the Medicare program's Quality Improvement Organizations (QIO) to identify appropriate cases. These organizations are mandated to determine whether a patient needs to be admitted to a hospital, and whether the services could be provided on a more economical basis in an alternative setting, including a different type of inpatient health care facility. Some of the proposed MedPAC criteria may already be collected by QIOs. More information is needed to understand current practices and the impact of each of these recommendations on extant workloads, budgets, and capabilities.

This project will use Medicare claims and administrative data to examine the feasibility of patient level criteria by studying differences between patients treated in LTCHs and other hospitals. Some of this work has been done by MedPAC and other researchers. RTI will build on this work and focus on the remaining questions. In addition, RTI will interview QIOs

regarding the criteria they currently use to determine the appropriateness of admissions to LTCHs. Of particular interest, will be the criteria used to determine the difference between the types of care provided that could be treated in the IPPS hospital (with an outlier payment to offset the extraordinary cost of the longer length of stay) versus the LTCH stay and the role each plays during a patient's episode of care. In some cases, comparisons between LTCHs and IRF patients may also be included. Finally, this project will conduct site visits and interview a select mix of providers, including those treating the more intensive patients in acute care hospitals, LTCHs, and IRFs. These site visits and interviews will be useful for understanding the differences between these types of admissions and whether they vary clinically or are a function of varying availability of substitute providers in a geographic area.

Many of these issues were raised by MedPAC. This project will investigate the areas where more information is needed before a final set of criteria can be recommended. As always, CMS is interested in limiting provider reporting burdens but also interested in assuring that the most cost-effective care is provided to beneficiaries needing these types of services.

This report summarizes the research in this area and describes the approach RTI will take in Phase II to answer these questions. The report is organized in five parts:

Section I: Introduction to the Project and the Issues Being Addressed

Section II: The Diversity of LTCHs

Section III: Current Knowledge Related to LTCHs, Potential Substitutes, and Patient Differences

Section IV: Current Regulatory Requirements for LTCHs and other hospitals

Section V: Project Approach for Phase II.

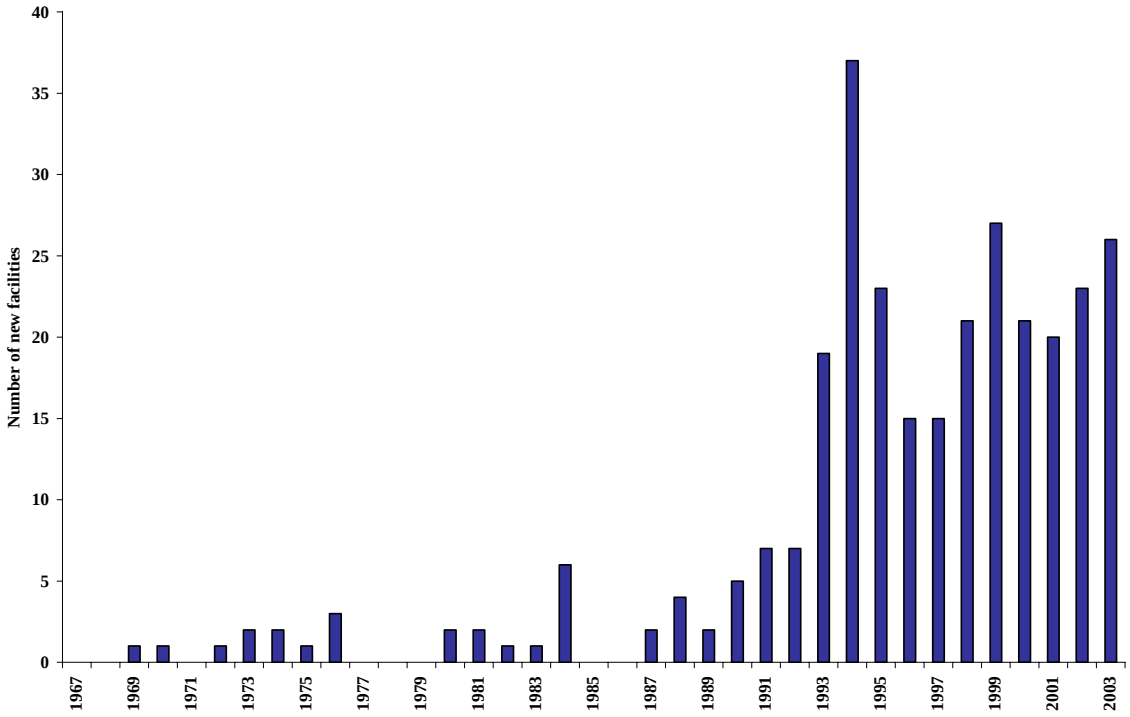
SECTION 2
THE GROWTH AND DIVERSITY OF LTCHS

LTCHs have participated in the Medicare program for a very long time. The types of patients they treat and the types of services they provide have evolved as technologies improved and the healthcare system, in general, evolved. This is a very heterogeneous group of hospitals. While all treat medically complex cases, these cases range across many diagnoses, as do the resources required to treat them. This section describes the differences in the types of hospitals certified as LTCHs and the types of populations they treated.

2.1 Growth in the Number of LTCHs

The number of LTCHs has increased markedly since the implementation of the IPPS in 1989 (See ***Figure 1***.) although much of this growth has been within the past decade. While the use of all types of post acute care expanded during the 1990s, LTCHs grew the most rapidly (MedPAC 2003).

Figure 1. New facilities, 1967-2003



SOURCE: CMS Long-term care hospital list, January 2004.

In 1993, there were 105 LTCHs and this number climbed to 318 by 2003, amounting to an average growth rate of 12 percent a year. Most recently, the growth rate has doubled. While 22 new LTCHs were established during the first half of fiscal year 2004, this same number was established during all of FY 2003 (MedPAC 2004).

Most of the more recent growth in LTCHs has been in HwHs (Dobson et al., 2004). From 1993 to 2003, the number of LTCHs increased around 12 percent while the number of HwHs increased approximately 35 percent. In 2004, HwHs had expanded to account for almost half of all LTCHs. In general, HwHs grew at three times the rate of all LTCHs (MedPAC 2004).

2.1.1. Geographic Distribution

Long-term care hospitals are not uniformly available across the nation. Rather, there is a high concentration of LTCHs in the northeast and southern parts of the nation (MedPAC 2004; Gage, Moon and Chi, 1999). Massachusetts, Louisiana and Texas contain 35 percent of all LTCHs, yet only 10 percent of Medicare beneficiaries reside in these states (MedPAC 2003). There is a noticeable lack of LTCHs in other parts of the nation (MedPAC 2004).

Several factors affect the geographic distribution of these hospitals. While states with strict certificate of need processes or a prohibition against proprietary hospital ownership may have a lower number of LTCHs, states with large populations may have a larger number of these facilities. Growth in the number of LTCHs also is associated with geographic differences (Liu, et al., 2001). While the oldest LTCHs are concentrated in the Northeast, approximately half of the respiratory facilities and the majority of the newest LTCHs are located in the South (MedPAC 2003). However, the presence of LTCHs in a given area is not related to there being a high proportion of the sickest patients in the area, and there is a general lack of clinical relationship to LTCH location (MedPAC 2004).

2.2 Types of LTCHs

LTCHs' differences are associated with several characteristics, including their length of tenure in the Medicare program, their ownership, and their organization as a provider within another provider campus. These hospitals have evolved from older, chronic care hospitals treating under-insured populations to those specializing in complex treatments with a much greater emphasis on acute care needs.

2.2.1 Old TB and chronic disease hospitals

The original LTCHs were established prior to the IPPS, which went into effect in October of 1983. The majority of these facilities began as tuberculosis and chronic disease hospitals. They treated patients with chronic conditions who needed inpatient level acute care but who were not likely to be discharged from the acute hospital within a couple weeks. While these hospitals still treat these more complex cases, many also provide a range of rehabilitation and other services, including physical and occupational therapy alongside speech language pathology (Liu et al., 2001).

The majority of these older facilities are freestanding (JEC 2004). These LTCHs are predominantly large hospitals, with an average of over one-hundred beds each. Slightly less than half of the population treated in these LTCHs are Medicare patients with the remaining half divided almost evenly between Medicaid and privately insured patients (MedPAC 2003).

2.2.2 Facilities specializing in respiratory care

A new, more homogeneous group of LTCHs entered the market between October of 1983 and the mid-1990s. These hospitals focused on respiratory care and many were part of a single large chain (Liu et al., 2001). These hospitals were smaller than the old tuberculosis and chronic disease facilities, with most having between 25 and 99 beds each.

As with the old hospitals, these facilities were generally freestanding. However, their payer mix differed from the older hospitals. Approximately 70 percent of admissions to LTCHs specializing in respiratory care are Medicare patients. In contrast to the older facilities which serve a large proportion of Medicaid patients, Medicaid only accounted for 8 percent of the patients treated in these newer facilities (MedPAC 2003).

2.2.3 Hospitals within Hospitals (HwHs)

During the 1990s, LTCHs evolved further in terms of their organizational arrangements. They differ from other types of hospitals in that they are all free-standing hospitals by definition. Medicare does not authorize subprovider units defined by a length of stay. However, during the mid-1990s, LTCHs began developing hospitals within hospitals (HwH) and satellite LTCHs (Liu, et al., 2001, JEC 2004). Hospitals within hospitals are smaller than freestanding facilities with an average bed count of 36 compared to 111 beds among freestanding LTCHs (MedPAC 2004). On average, these hospitals have ten percent more Medicare patients than the older facilities specializing in respiratory care (MedPAC 2003). Hospitals within hospitals occupy space in a building also used by another hospital or in one or more entire buildings on the same campus as buildings used by another hospital. Unlike HwHs, satellite facilities are not separate hospitals but are "part of a hospital that provides inpatient services in a building also used by another hospital" (CMS, 2005a). While HwH have their own Medicare provider number, satellite facilities share a provider number with their parent hospital. Either a freestanding LTCH or HwH can create a satellite facility by sharing space in a building used by another hospital or in one of more entire buildings located on the same campus as buildings used by another hospitals. As shown in ***Table 1***, satellite LTCH and HwHs must also meet certain certification criteria.

Table 1
Definition of hospital within hospital and Satellite LTCHs

Hospitals within Hospitals (HwHs)	**Satellite LTCHs**
An HwH is a hospital that occupies space in a building also used by another hospital, or in one or more separate buildings located on the same campus as buildings used by another hospital. HwHs must meet the following criteria.	A satellite facility is a part of a hospital that provides inpatient services in a building also used by another hospital, or in one or more entire buildings located on the same campus as buildings used by another hospitals. Satellite LTCHs must meet the following criteria.
1) It must have a separate governing body, chief medical officer, medical staff, and chief executive officer.	1) For the most recent costs reporting period beginning October 1, 1997, the hospitals number of State-licensed and Medicare-licensed beds (including beds in satellite facilities) cannot exceed the number of beds on the last day of the hospital's last cost reporting period beginning before October 1, 1997.

(continued)

Table 1
Definition of hospital within hospital and Satellite LTCHs (continued)

Hospitals within Hospitals (HwHs)	Satellite LTCHs
2) In addition, the hospitals must meet at least one of the following criteria.	2) It cannot be under control of the governing body or chief executive officer of the hospital in which is it located, and it furnishes inpatient care through the use of medical personnel who are not under the control of the medical staff or chief medical officer of the hospital in which it is located.
A) It must perform the following basic functions through the use of employees or contracts/agreement with entities other than the hospital occupying space in the same building or on the same campus: Quality assessment and performance improvement, Medical staff, Nursing services, Medical records services, Pharmaceutical services, Laboratory services, Utilization review, Infection control, Discharge planning, and Organ, tissue, and eye procurement.	3) It must maintain separate admission and discharge records from the hospital in which it is located. 4) Its beds must be physically separate from the beds hospital in which it is located. 5) It must be served by the same fiscal intermediary as the hospital of which it is part. 6) It must be treated as separate cost center of the hospital of which it is a part. 7) It must use an accounting system that properly allocates costs and maintains statistical data to support the basis of allocation. 8) It must report its costs on the cost report of the hospital of which it is a part, covering the same fiscal period and using the same method of apportionment as the hospital of which it is a part.
B) Services obtained under contracts or other agreements with the hospital occupying space in the same building or on the same campus (or with a third party that controls both hospitals) can comprise no more than 15% of the hospital's total inpatient operating costs.[a]	
C) At least 75% of the inpatient population must be referred to the hospital from a source other than another hospital occupying the same building or on the same campus.[a]	

NOTES:

[a] For the same period of at least six months used to determine compliance the LTCHs length of stay criteria.

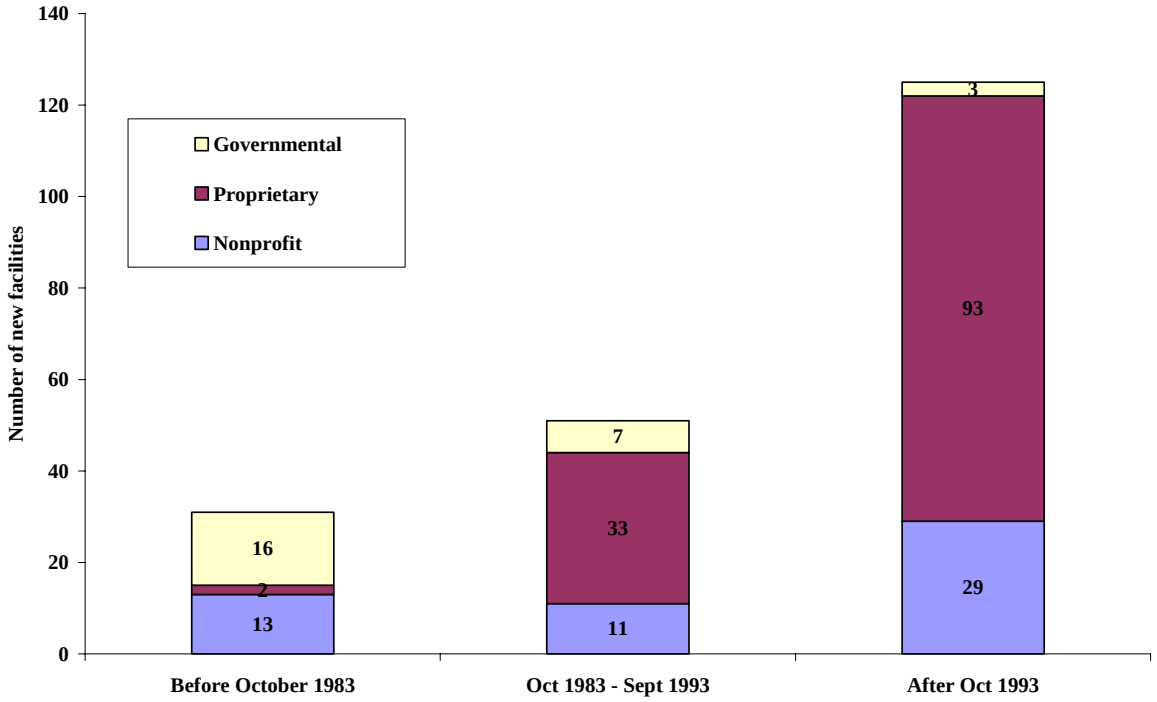
SOURCE: Code of Federal Regulations, 42CFR412.22(e) and (h), Excluded hospitals and hospital units: General Rules, Hospitals-within-Hospitals and Satellite Facilities, October 1, 2004.

To prevent Medicare program abuse that might result for inappropriate shifting of patients, CMS phased in limitations on the proportion of patients that could be referred to HwHs and satellite LTCHs from their co-located hospitals. Beginning on October 1, 2004, no more than 75 percent of a HwH's or satellite LTCH's admitted patients could be discharges from its co-located facility. Any HwH/Satellite LTCH patients exceeding the threshold would be subject to payment adjustments. Beginning October 1, 2005, the lesser of 75 percent or the percentage admitted from the host during the previous year would apply. The allowable percentage will then drop to 50 percent on October 1, 2006 and then 25 percent on October 1, 2007 (or the percentage from the previous year, whichever is lower). Outlier patients are not included in determining whether an HwH or satellite LTCH exceeds its threshold, and CMS made special considerations for rural hospitals, single hospitals within an MSA, and MSA dominant hospitals (42 CFR 412.535).

2.2.4 Distribution of public versus private facilities over time

Proprietary ownership of LTCHs has also grown since the implementation of the IPPS in 1984 (Liu, et al., 2001) (See ***Figure 2.***) The early tuberculosis and chronic disease hospitals were mainly government or non-profit facilities (JEC 2004). And while the newer facilities vary in terms of ownership, about 39 percent of those established between 1983 and 1993 belonged to a single large, national, for-profit chain called Vencor (MedPAC 2003).

Figure 2. Distribution of public versus private facilities by time period



SOURCE: NCI Hospital File, SEER-Medicare data.

The most recent types of LTCHs -- satellite facilities and HwHs -- are largely for-profit facilities (JEC 2004). Of these newest hospitals, many belong to two national, for-profit chains called Kindred[1] and Select (MedPAC 2003). While HwHs are owned by individual LTCH entities affiliated with acute care hospitals, satellite LTCHs are owned by multi-hospital, or chain LTCH companies (Liu, et al., 2001).

2.3 Populations Treated in LTCHs

As the facilities changed, the populations typically treated in them have also changed. This section describes some of the more common types of patients treated in LTCHs.

2.3.1 Respiratory System Care

Most LTCHs treat large numbers of respiratory patients, including those requiring ventilator-related support or other pulmonary treatments. Some LTCHs specialize in treating respiratory conditions. These patients are also commonly found in multi-specialty LTCH facilities.

Ventilator dependent patients are often treated in the older long-term care hospitals established between 1983 and 1993 (Liu, et al., 2001). These patients fall largely into two diagnostic related groups – respiratory diagnosis with ventilator support and tracheotomy with mechanical ventilation (MedPAC 2003). In fact, a diagnosis of tracheotomy is the strongest predictor of LTCH use (MedPAC 2003). Patients requiring extensive respiratory treatments to breathe normally without mechanical ventilator support may also be admitted to an LTCH.

Other common diagnoses of pulmonary patients treated in LTCHs include chronic obstructive pulmonary disease, pneumonia, respiratory failure, amyotrophic lateral sclerosis (Lou Gherig's disease), and Guillain-Barre syndrome (Select Medical Corporation – Hospital Services 2004).

While LTCH patients can be directly admitted from the community, most respiratory patients (85 percent) admitted to LTCHs are admitted from acute care hospitals; only 7 percent are admitted directly from the community (Liu, et al., 2001).

2.3.2 Rehabilitation

Many LTCHs also specialize in providing comprehensive medical care with rehabilitation services such as those provided by physical and occupational therapists and speech language pathologists (Liu, et al., 2001). LTCHs maintain that these patients often cannot undergo the three hours of intensive rehabilitation therapy a day needed to be admitted to inpatient rehabilitation facilities (IRF), or they require a degree of nursing and respiratory care that is not available in most acute rehabilitation programs. Diagnoses that fall into this group include cerebrovascular accidents, spinal cord injury, cerebral hemorrhage, neurologic disorders, head injury, anoxic brain injury, joint replacement and trauma (Select Medical Corporation – Hospital Services 2004).

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[1] Vencor was renamed Kindred Healthcare after emerging from bankruptcy in 2001.

Rehabilitation patients also use a mix of post acute services. Of those admitted to LTCHs, 15 percent were previously in a skilled nursing facility or home health agency and only 11 percent were admitted directly from the community (Liu, et al., 2001).

2.3.3 Other Complex Cases

While most LTCHs serve a high percentage of respiratory or rehabilitation patients, or both, some LTCHs provide services to other complex cases including those requiring cancer treatment, pain management and psychiatric care (Liu, et al., 2001). Other complex cases include those diagnosed with acute and sub-acute endocarditis, amputation, skin graft and wound debridement, and osteomyelitis; all of which are strong predictors of LTCH use (MedPAC 2003).

Medically complex patients tend to require more specialized care including intensive therapies and nursing care (Select Medical Corporation – Hospital Services 2004). These complex cases may include multisystem failure, neuromuscular damage, contagious infections and complex wounds needing extended care (MedPAC 2004). Congestive heart failure, uncontrolled diabetes, HIV/AIDS, renal failure and methicillin resistant staphylococcus aureus are also treated in some LTCHs (Select Medical Corporation – Hospital Services 2004). In general, LTCH patients tend to have several diagnoses on their Medicare claims and approximately 50 percent have five or more diagnoses (Ways and Means, 2004).

The types of cases treated also vary by the facility's tenure in the Medicare program. ***Table 2*** shows the five most common types of LTCH cases distributed by age – the oldest hospitals predate the IPPS, the middle group came into existence during the rise of Vencor and other LTCHs specializing in respiratory care, and the newest facilities are primarily HwHs and satellite LTCHs. While the newest facilities treat over half of all these cases, the oldest hospitals are treating the smallest proportion of heart failure and shock (DRG 127), only 12 percent, and conditions requiring ventilator support (DRG 475 and DRG 483), 13 percent and 8 percent.

While these same diagnoses are treated in the acute care hospitals, LTCH patients tend to be more severely ill, particularly those requiring ventilator support services. Table 2 also shows how severity varies across hospitals by tenure and by diagnosis. Newer hospitals also tend to treat more severely ill patients (those having APR-DRGs of 3 or 4). While 35 percent of patients in the oldest LTCHs were a severity level 2, this group accounted for only 20 percent of the patients in the middle and newest LTCHs. Conversely, severity level 4 accounted for about 35 percent of the patients in the oldest LTCHs but over 50 percent of patients in the middle and new LTCHs. And within conditions, the most severely ill in the older hospitals tended to be in DRG 475 - respiratory with ventilator support. Among all types of LTCHs, approximately 25 percent of patients had a severity level of 3 reflecting the complexity of cases admitted to LTCHs.

Table 2
Number of cases by DRG and severity level, by age of long-term care hospitals

	Severity Level					
DRG	1	2	3	4	Total	Percent
014 Stroke with infarction						
Old	30	322	149	57	558	19%
Middle	57	254	167	112	590	20
New	85	745	532	423	1,785	61
					2,933	
127 Heart failure and shock						
Old	9	114	103	9	235	12
Middle	9	153	176	44	382	20
New	61	492	623	161	1,337	68
					1,954	
209 Major joint replacement						
Old	103	204	86	5	398	21
Middle	91	175	99	16	381	20
New	251	534	317	43	1,145	60
					1,924	
475 Respiratory with ventilator support						
Old	0	7	56	168	231	13
Middle	1	7	105	276	389	22
New	0	18	313	828	1,159	65
					1,779	
483 Trachestomy with ventilator support						
Old	2	0	41	380	423	8
Middle	0	13	162	1,166	1,341	24
New	5	45	453	3,226	3,729	68
					5,493	

NOTES: DRG = Diagnostic Related Group. Old were certified before October 1983; Middle were certified from October 1983 through September 1993; New were certified in or after October 1993. Severity level was based on APR-DRG assignment.

SOURCE: Personal communication from MedPAC. Received via fax November 29, 2004.

2.3.4 Niche Facilities

While most LTCHs specialize in respiratory and rehabilitation services, some niche LTCHs serve unique patient populations or provide uncommon services. These facilities include LTCHs serving prison populations. Others provide non-psychiatric services for mentally handicapped persons or focus on developmentally disabled children and younger adults.

While some niche LTCHs are large facilities with over 350 annual discharges, they represent a small number of LTCHs. The vast majority of LTCHs specialize in respiratory system care and physical rehabilitation (Liu, et al., 2001).

2.4 Growth in Medicare Payments to LTCHs

Post-acute care spending has grown rapidly since the 1984 IPPS implementation (Liu, et al., 2001). LTCHs are the most expensive of all acute care facilities, and account for an increasing share of Medicare expenditures (JEC 2004). At an average annual growth rate of 15 percent, Medicare LTCH spending grew more rapidly than the number of LTCHs (MedPAC 2004).

Medicare payments to LTCHs grew from $0.2 billion in 1988 to $1.7 billion in 1996 (Liu, et al., 2001). Medicare spending on these hospitals continued growing after the BBA and further increased to $1.9 billion in 2001. CMS has projected continued growth to $2.3 billion in 2005 and $2.9 billion in 2009 (JEC 2004). These estimates do not take into account payments to newly established LTCHs or the increasing number of LTCH cases, including the 24 percent growth from 2001 to 2002 (MedPAC 2004).

2.4.1 Efforts to Constrain LTCH Expenditures: Changing LTCH Payment Policies

Much of this growth in LTCH expenditures occurred prior to the October 2002 implementation of the LTCH prospective payment system (PPS). Until then, LTCHs were paid on a limited cost basis under the Tax Equity and Fiscal Responsibility Act (TEFRA) of 1982 (Public Law, 97-248). TEFRA set provider-specific payments based on historical average costs per case up to a target amount. Payment ceilings were based on the costs that hospitals incurred during an initial base period and updated for changes in inflation.

While originally intended as a temporary payment system, the TEFRA system remained in place longer than expected, partly due to the challenges in accurately predicting resource use among their patients (MedPAC, 1999). This led to payment inequities across facilities. In particular, newer hospitals could influence their payment ceilings by maintaining low costs during their base year, while older facilities were required to use the costs they had already incurred in 1982 to set their payment limits (CMS, 2002, MedPAC, 1999, Liu et al.., 2001). As a result, older facilities were more likely to incur costs above their ceilings and therefore, receive payments below costs, while newer facilities were more likely to incur costs below their ceiling and receive bonus payments (MedPAC, 1998).

The Balanced Budget Act (BBA) of 1997 (Public Law 105-33) included several provisions that responded to the payment inequities among IPPS exempt facilities. In addition, the BBA also required that CMS establish a case-mix adjusted prospective payment system for LTCHs that would replace the TEFRA payment system. The Balanced Budget Refinement Act (BBRA) of 1999 clarified that the LTCH PPS should be a discharge-based system that relies on DRGs to account for differences in patients' resources use and costs. The law also specified that HHS should begin implementing the LTCH PPS by October 1, 2002 (Public Law 106-113).

CMS issued its final rule on the implementation of the LTCH PPS on August 30, 2002 (CMS, 2002). It classified patients into 510 distinct LTC-DRGs which were based on the IPPS payment system. Payment rates for the LTCH PPS are based on relative weights that reflect differences in resource use among LTC-DRGs. The Medicare payment amount for each discharge is the product of the LTC-DRG weight multiplied by the standard federal rate. The

federal rate for LTCHs in FY2003 was $35,956.15. This amount is then adjusted for short-stay and long-stay outliers, differences in area wages, and cost of living allowance (COLA) in Alaska and Hawaii.

The LTCH rate was based on the updated costs per discharge and estimated payments for FY2003. This amount reflects historical average payments based on facility costs. Under TEFRA, costs in these facilities were much higher than in other IPPS-excluded facilities such as inpatient rehabilitation facilities or IPPS-covered hospitals. These differences carried through into the new payment systems as can be seen in ***Table 3***.

Table 3
Medicare prospective payment base rates, FY2003

Type of Hospital	FY03 Base Rate
Short Stay[a]	$4,658
Inpatient Rehabilitation Facility	$12,193
Long-Term Care Hospital	$35,956

[a] Indicates rate for large urban hospitals. The rate includes operating and capital standardized payments.

SOURCES: Federal Register, 42 CRF Part 405, 412, and 413, August 1 and 30, 2002.

Variation across base rate payments per discharge calls for a better understanding of differences in the populations treated and the resources used in these facilities to treat patients. The next section of this report reviews some of these population differences.

SECTION 3
CURRENT KNOWLEDGE RELATED TO LTCHS, POTENTIAL LTCH SUBSTITUTES, AND PATIENT DIFFERENCES AMONG HOSPITALS

A great many questions have been raised regarding the types of cases treated in LTCHs, how they differ from similar types of patients using other providers, and whether quality of care has been affected by a lack of access to LTCHs in different parts of the country. This section of the report summarizes the work that has been done on these issues and identifies the areas that need further investigation before developing criteria to distinguish LTCHs from other providers.

3.1 LTCHs versus Non-LTCHs

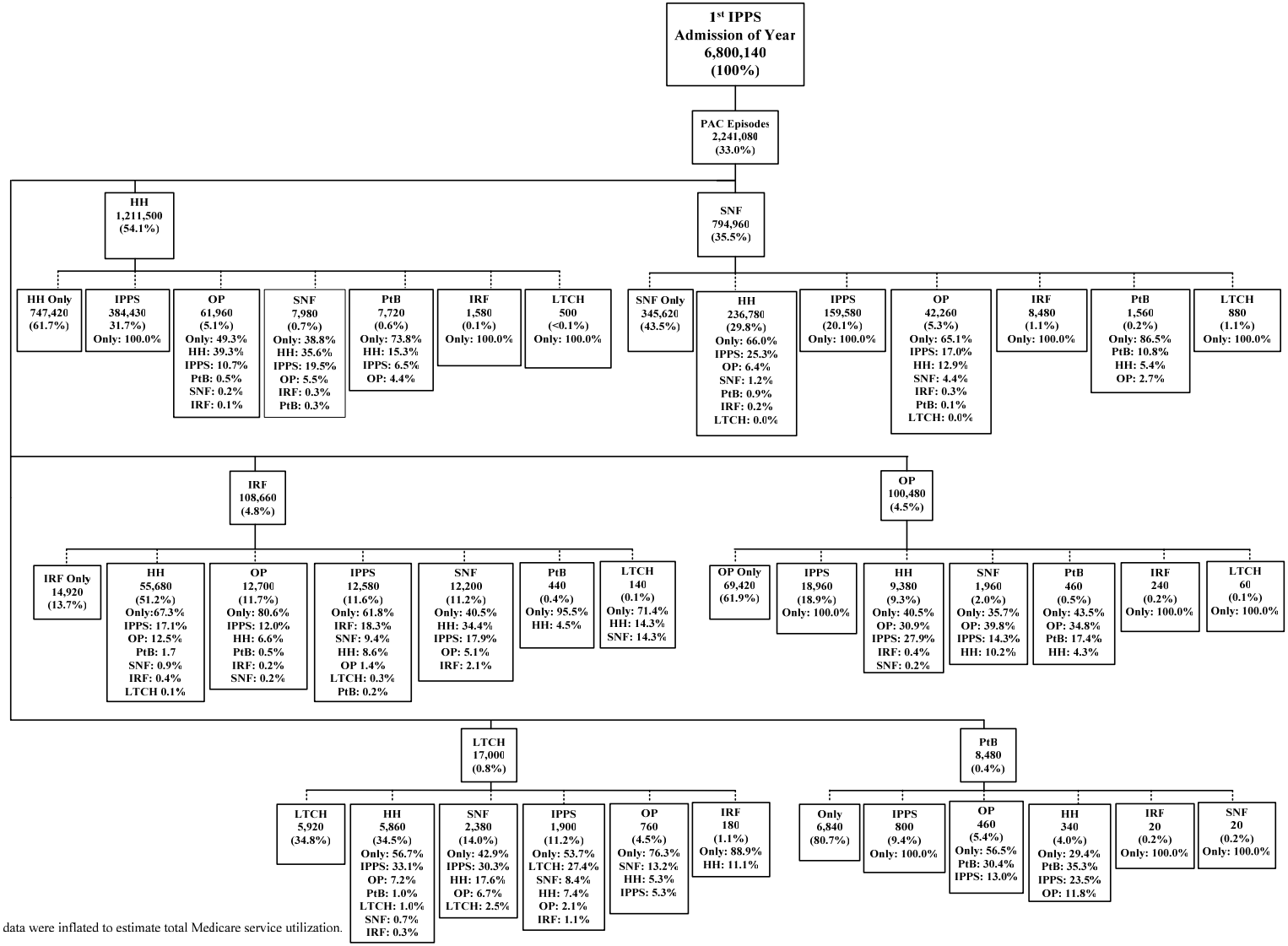
Central to determining appropriate criteria for defining LTCHs is understanding differences among LTCHs and between LTCHs and other types of post-acute care providers and their patients, particularly those that may serve as substitutes for LTCHs. This section examines research that has been conducted in these areas. It considers issues related to the identification of LTCH patients and facilities including case mix and types of post acute care providers used during an episode, lengths of stay, Medicare payments, outlier payments, hospital readmission and mortality rates, ICU use, and patient severity.

3.1.1 Types of Providers Used in an Episode

RTI has been investigating differences in post acute hospital discharge destinations for various types of patients. ***Figure 3*** shows the destinations of Medicare beneficiaries discharged from IPPS hospitals in 1996. These episodes are based on the five percent MedPAR and SAF files and include all live discharges who were admitted to an LTCH, SNF, or IRF within 5 days of discharge from an IPPS hospitals as well as those patients receiving HH, outpatient therapy, or Part B therapy within 30 days of an IPPS discharge. Episodes ended with a hospital readmission or a 60 day gap in service. As evidenced in Figure 3, LTCH patients constitute a relatively small portion of all post acute care users. In 1996, of the estimated 2.2 million Medicare beneficiaries who were discharged from an IPPS hospitals and entered into post acute care, less than one percent received care in an LTCH immediately following their discharge. Of these LTCH patients, 35 percent received only LTCH services during their post acute episode. Of the remaining LTCH patients, 34 percent received home health care directly following their LTCH stay, while 14 percent entered a SNF. A much smaller proportion (only 1 percent) of LTCH patients entered an IRF following their LTCH stay. The remaining LTCH patients were readmitted to an IPPS hospitals (11 percent) or went on to receive outpatient therapy.

Figure 4 shows post acute care transitions for 2002. While the proportion of post acute patients entering LTCH was still relatively small compared to other post acute settings (only 1.8 percent), the number of beneficiaries discharged from IPPS hospitals in 2002 into LTCHs more than doubled from an estimated 17,000 in 1996 to 37,600 in 2002. Subsequent home health use declined from 35 percent in 1996 to 27 percent in 2002. Admissions to IRFs from LTCHs more than doubled, although the percentage of LTCH patients falling into this group remained small at only 3 percent. And the proportion who returned to an IPPS hospital increased from 11 percent in 1996 to 18 percent in 2002.

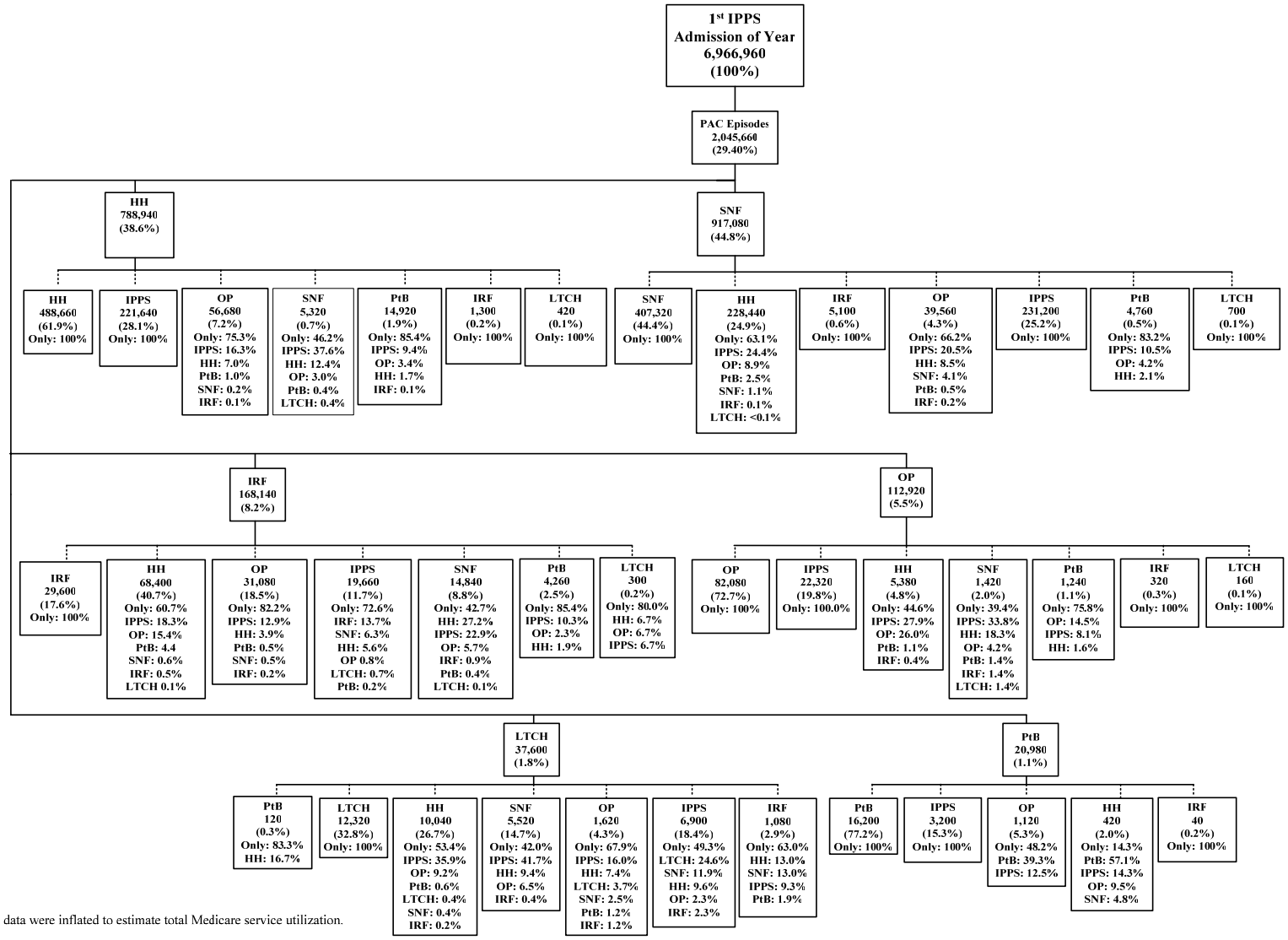
Figure 3. Post acute care transitions for IPPS hospital discharges, 1996



NOTE: Sample data were inflated to estimate total Medicare service utilization.

SOURCE: RTI Analysis of 1996 Medpar and SAF files, 5 percent sample (BBAR 028).

Figure 4. Post acute care transitions for IPPS hospital discharges, 2002



NOTE: Sample data were inflated to estimate total Medicare service utilization.

SOURCE: RTI Analysis of 1996 Medpar and SAF files, 5 percent sample (BBAR 028).

Table 4 shows the characteristics of patients discharged from IPPS hospitals in 1996 categorized by the type of post acute care episodes. Patients discharged to an LTCH were placed into three groups: 1) those that only used an LTCH during their post acute episodes, 2) those that used an LTCH plus other inpatient providers and ambulatory care, and 3) those using only an LTCH and ambulatory[2] care. These episodes are compared to episodes involving other types of post acute care provider combinations.

LTCH users tend to be older than non-LTCH users; seventy percent were between 65 and 84 years, and over half (between 51 and 60 percent) were female. Across all episodes types, LTCHs had a high proportion of users who were Medicaid eligible, with the proportion as high as 37 percent among the sickest LTCH users who also used inpatient and ambulatory care during their episode.

LTCH users tend to be sicker, on average, than other PAC populations. They have a higher number of IPPS diagnoses relative to other types of post acute episodes. Seventy-five percent of patients in the "LTCH only" group and the "LTCH, inpatient, and ambulatory" group had six or more comorbidities. The "LTCH plus ambulatory" group had a lower number of diagnoses with only 49 percent having six or more.

This greater medical complexity is also reflected in Hierarchical Coexisting Condition (HCC) scores which are based on a patient's Medicare expenditures from the year proceeding the index IPPS admission. Table 4 shows that "LTCH only" users had the highest average HCC score, 3.23, of any episode type, followed by "LTCH, other inpatient, and ambulatory care" users at 3.11. Patients who used "LTCHs and ambulatory care only" had lower HCC scores on average, 2.52, but their scores were still higher than the non-LTCH groups. LTCH users were not concentrated in any of the principal diagnoses that we identified. Most fell into the "other" diagnosis category suggesting that LTCH admissions represent a wide range of conditions as identified during their initial IPPS discharge.

Table 5 shows LTCH users' characteristics in 2002. These findings are similar to those shown in 1996 although a notable exception is the increasing number of comorbidities. The proportion of LTCH users falling into the six or more diagnoses group increased across all three LTCH groups with as many as 91 percent of cases having over six diagnosis among those who used "LTCHs, plus other inpatient and ambulatory care" (a 15 percent increase). The proportion of "LTCH and ambulatory only" cases with six or more diagnoses jumped 20 percentage points from 62 to 82. HCC scores, on the other hand, did not change so drastically. They fell 5 percent for "LTCH, other inpatient and ambulatory" users, while rising four percent among "LTCH and ambulatory" users. Among "LTCH-only" users, the change in HCC score over time was less than 1 percent. This suggests the differences were in the acuity of the admission rather than the average declining health of the patients admitted to LTCHs. Another possibility is that hospitals improved their diagnostic coding following the March 2002 release of CMS's proposed rule detailing the LTCH PPS (CMS, 2002a)

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[2] Ambulatory care included home health services, Part B, or outpatient therapy.

Table 4
Characteristics of PPS hospital discharges by type of episode, 1996

	Only LTCH	LTCH w/SNF/PPS & AMB	LTCH/AMB	Only IRF	IRF w/other IP/AMB	IRF & AMB	Only SNF	SNF & AMB	Only HH	Outpt/ Part B	Only AMB
Age											
• 0-64	14.2	11.4	15.9	9.2	4.0	7.8	4.0	4.3	8.3	14.9	11.6
• 65-74	35.4	34.2	31.4	37.9	26.4	38.4	17.4	25.3	32.5	41.4	41.9
• 75-84	34.8	35.2	39.1	39.9	47.4	40.6	40.7	43.8	40.6	29.0	35.1
• 85+	15.6	19.2	13.7	13.0	22.2	13.2	37.9	26.6	18.6	14.7	11.4
Gender											
• Male	49.3	39.9	38.5	39.7	34.5	34.2	32.9	30.7	37.4	44.6	37.6
• Female	50.7	60.1	61.5	60.3	65.5	65.8	67.1	69.3	62.6	55.4	62.4
White	76.6	75.1	77.9	85.6	90.2	87.1	89.5	91.6	85.0	89.6	87.2
MedicaidEver	32.3	36.8	27.9	14.5	17.3	13.0	30.0	16.2	20.3	22.5	18.9
Principal Diagnosis											
• Stroke	5.0	9.3	8.7	21.8	30.5	19.3	8.0	6.8	3.3	9.4	4.9
• Pneumonia	1.7	0.5	2.2	1.1	0.6	0.7	5.4	3.0	4.3	3.0	2.5
• CHF	3.1	1.0	1.9	1.0	1.7	0.9	4.2	3.4	7.3	2.6	3.5
• Joint	3.1	4.7	11.2	24.3	14.3	34.6	6.6	19.0	5.4	13.3	17.8
• Hip	2.2	4.7	1.9	8.0	12.0	8.7	7.8	8.6	1.2	2.2	1.8
• COPD	2.0	1.6	3.6	0.9	0.3	0.5	1.8	1.5	3.5	2.7	3.8
• Respiratory	5.3	3.1	3.0	0.5	0.4	0.4	3.8	2.1	1.8	1.5	1.4
• Nutrition	0.6	1.0	1.4	0.8	0.6	0.4	3.0	2.0	2.0	1.2	1.3
• Other	77.2	74.1	66.1	41.7	39.6	34.5	59.5	53.7	71.2	64.2	63.2
Diagnosis Count											
• 1-2	3.9	5.7	6.3	10.2	5.0	11.7	3.5	6.7	7.2	13.7	12.0
• 3-5	20.6	19.2	32.0	35.4	30.3	39.2	27.8	32.0	36.2	42.4	39.0
• 6+	75.5	75.1	61.8	54.4	64.7	49.1	68.8	61.4	56.6	43.9	49.0
Readmit Rate	6.1	54.9	40.7	29.4	57.1	21.4	31.6	26.5	34.0	20.6	24.0
Average HCC Score	3.2	3.1	2.5	1.8	2.0	1.7	2.3	2.0	2.0	1.6	1.6
PAC Episode Share (in percent)	0.3	0.2	0.3	1.0	1.1	3.2	22.5	12.9	50.5	4.3	3.6

NOTE: Amb includes HH, OP and Part B.

SOURCE: RTI analyses of 1996 MedPar and SAF files, 5% sample.

Table 5
Characteristics of hospital discharges by type of episode, 2002

	Only LTCH	LTCH w/SNF/PPS & AMB	LTCH/ AMB	Only IRF	IRF w/other IP/AMB	IRF & AMB	Only SNF	SNF & AMB	Only HH	Outpt/ Part B	Only AMB
Age											
• 0-64	13.1	14.7	15.7	10.1	5.8	8.7	5.1	5.2	9.4	17.2	12.8
• 65-74	30.9	26.6	31.0	32.6	24.7	36.9	16.0	22.0	29.5	40.3	44.1
• 75-84	39.8	39.5	38.7	42.4	44.4	41.4	39.9	44.6	40.3	31.1	33.2
• 85+	16.2	19.1	14.6	14.8	25.1	13.0	39.0	28.1	20.8	11.5	9.9
Gender											
• Male	47.3	42.4	37.0	37.2	36.3	33.6	33.2	30.5	38.4	43.8	39.3
• Female	52.7	57.6	63.0	62.8	63.7	66.4	66.8	69.5	61.6	56.2	60.7
• White	76.8	76.0	75.4	87.0	87.2	86.7	88.1	90.6	84.0	89.9	88.6
MedicaidEver	30.9	38.5	30.2	16.3	18.8	14.9	32.9	17.3	21.9	19.1	17.0
Principal Diagnosis											
• Stroke	3.9	8.8	6.1	10.6	21.6	11.1	5.4	5.0	2.7	6.9	3.5
• Pneumonia	4.0	2.3	3.3	1.9	1.3	0.9	6.6	4.3	5.3	3.3	2.9
• CHF	2.1	1.8	2.7	1.4	1.0	1.0	4.1	3.0	6.1	2.7	2.7
• Joint	2.2	2.8	7.2	25.3	13.0	41.8	6.1	19.7	5.9	15.4	31.4
• Hip	2.0	2.8	4.9	6.3	11.7	6.5	6.2	7.2	0.9	1.2	1.1
• COPD	3.2	2.3	3.7	1.3	0.9	0.6	1.9	2.0	3.6	3.2	2.4
• Respiratory	1.8	2.3	1.2	0.3	0.6	0.2	3.0	1.3	1.0	0.7	0.6
• Nutrition	1.3	2.6	1.2	1.1	1.0	0.7	3.6	1.9	2.0	1.7	1.0
• Other	79.6	74.2	69.7	51.8	49.0	37.2	63.2	55.6	72.5	65.1	54.5
Diagnosis Count											
• 1-2	1.6	0.8	2.8	6.2	2.4	8.1	1.5	3.4	4.1	9.5	9.6
• 3-5	8.5	8.3	15.2	23.0	17.0	29.9	15.1	21.1	23.2	32.7	32.4
• 6+	89.9	91.0	81.9	70.7	80.6	62.1	83.4	75.5	72.7	57.8	58.0
Readmit Rate	9.4	52.7	40.2	28.7	52.5	20.5	36.2	26.2	31.2	20.6	19.3
Average HCC Score	3.2	3.0	2.6	1.8	2.1	1.6	2.4	2.0	2.1	1.7	1.7
PAC Episode Share (in percent)	0.8	0.4	0.7	2.2	1.2	5.2	31.2	13.7	34.7	6.1	3.9

NOTE: Amb includes HH, OP and Part B.

SOURCE: RTI analyses of 2002 MedPar and SAF files, 5% sample.

3.1.2 Lengths of Stay

Table 6 shows average lengths of stays (ALOSs) for each type of post acute inpatient provider, broken down by episode type. Patients using "only LTCHs" had an ALOS in the LTCH of 26.5 days in 1996. This number rose to 29.4 days in 1999 but dropped to 27.5 days in 2002 as the new PPS went into effect. Post acute episodes involving "LTCH plus ambulatory care" showed different patterns. LTCH length of stay dropped from 27.5 days in 1996 to 26.4 days in 1999 but rose to 27.1 days in 2002.

Those post acute patients using a combination of "LTCHs, other inpatient providers, and ambulatory care" had the longest LTCH ALOS among any episode type, 41.8 days in 1996. Their ALOS dropped to 35.6 days in 2002 but, as expected, was longer than the ALOS in other types of settings. SNF stays among this group of LTCH users similarly dropped from 37.6 days in 1996 to 34.5 days in 2002.

In a similar study, MedPAC compared average IPPS LOS patterns between LTCH users and similar patients who did not use LTCHs (2003). Their analysis was based on 2001 MedPAR data using the 100 percent sample. They constructed episodes using IPPS admissions from the first six months of 2001 and excluded patients who were unlikely to be transferred to an LTCH because they had very short IPPS LOSs. Episodes ended upon readmission to an IPPS hospitals, upon death, or a 61 day gap in post acute care. MedPAC's descriptive analysis examined 44 DRGS and found that within 31 of these groups, LTCH patients had slightly longer IPPS hospitals stays than post acute care users in markets without LTCHs.

Subsequent MedPAC analyses created subsamples of these patients identifying those with a high probability of LTCH use and patients with an IPPS hospital diagnosis of tracheostomy with at least 96 hours of ventilator support (MedPAC, 2004). This analysis, which also used the 2001 MedPAR data, found that LTCH patients' IPPS hospital stays were seven days shorter, on average, compared to similar non-LTCH patients. In addition, LTCH patients had lower SNF utilization than similar non-LTCH patients--they were three to five times less likely to use SNFs than non-LTCH patients, depending on the particular DRG they examined (MedPAC, 2003). MedPAC also found that 24 percent of the patients with the highest probability of using an LTCH used a freestanding SNF although the probability of using a SNF dropped by one-third for LTCH users. However, information gleaned from a set of complementary interviews and site visits suggested that the number of SNFs capable of providing a level of care comparable to LTCHs may be limited (MedPAC, 2004).

3.1.3 Average Medicare Payments

Several studies have shown that LTCH stays are, on average, are more costly to the Medicare program than stays within other post acute settings (RTI 2003; MedPAC 2003). ***Table 7*** shows the average Medicare payments for LTCHs, IRFs, and SNFs by episodes types. Post acute care patients using "only LTCHs" had average LTCH-related Medicare payments of $18,327 in 1996. This average increased by 25 percent to $22,939 in 1999 but fell by 16 percent to $19,137 in 2002. Episodes involving a combination of "LTCHs, other post acute inpatient facilities, and ambulatory care" had the most costly LTCH-related costs. Medicare payments within this group averaged $26,935 in 1996, increased to $28,910 in 1999 and dropped to

Table 6
Changes in average length of stay in PAC setting by PAC mix of services, PPS sample, 1996, 1999, 2002

Episode Type	Year	Average Length of Stay		
		IRF	LTCH	SNF
LTCH only	1996	-	26.5	-
	1999	-	29.4	-
	2002	-	27.5	-
LTCH + Inpatient + AMB	1996	-	41.8	37.6
	1999	-	38.8	33.1
	2002	-	35.6	34.5
LTCH + AMB	1996	-	27.5	-
	1999	-	26.4	-
	2002	-	27.1	-
IRF only	1996	13.4	-	-
	1999	12.8	-	-
	2002	11.5	-	-
IRF + Inpatient + AMB	1996	20.1	35.9	30.2
	1999	19.6	29.7	28.9
	2002	17.8	27.3	30.3
IRF + AMB	1996	16.1	-	-
	1999	14.4	-	-
	2002	12.7	-	-
SNF only	1996	-	-	31.0
	1999	-	-	26.2
	2002	-	-	26.9
SNF + AMB	1996	-	-	22.8
	1999	-	-	19.5
	2002	-	-	22.2

SOURCE: RTI Analysis of 1996, 1999 and 2002 MedPar and SAF files, 5% sample.

Table 7
Changes in average payment in PAC setting by PAC mix of services, PPS sample, 1996, 1999, 2002

Episode Type	Year	Average Payment		
		IRF	LTCH	SNF
		$	$	$
LTCH only	1996	-	18,325.76	-
	1999	-	22,839.01	-
	2002	-	19,136.72	-
LTCH + Inpatient + AMB	1996	-	26,934.84	8,800.75
	1999	-	28,910.44	7,754.16
	2002	-	25,053.93	9,156.98
LTCH + AMB	1996	-	17,225.75	-
	1999	-	18,811.01	-
	2002	-	19,463.55	-
IRF only	1996	8,097.60	-	-
	1999	8,228.16	-	-
	2002	9,982.98	-	-
IRF + Inpatient + AMB	1996	12,790.44	25,039.82	6,737.27
	1999	12,820.45	24,394.26	6,790.07
	2002	13,434.76	20,565.86	8,700.25
IRF + AMB	1996	10,053.89	-	-
	1999	9,506.51	-	-
	2002	10,809.64	-	-
SNF only	1996	-	-	5,757.09
	1999	-	-	5,563.42
	2002	-	-	7,077.58
SNF + AMB	1996	-	-	5,452.64
	1999	-	-	4,965.58
	2002	-	-	6,589.67

SOURCE: RTI Analysis of 1996, 1999 and 2002 MedPar and SAF files, 5% sample.

$25,053.93 in 2002. At the same time average SNF-related costs for this group of LTCH users grew from $8,801 in 1996 to $9,156 in 2002, a 3.8 percent increase. Among those patients using "only LTCHs and ambulatory care" during their post acute episodes, average Medicare payments grew from $17,226 in 1996 to $19,463 in 2002, a 13 percent increase.

MedPAC's 2003 analysis of 2001 MEDPAR data similarly found that LTCH use was more expensive than other types of post-acute care but that total episode costs (including IPPS stay and post acute care) were 140 to 260 percent higher for LTCH patients compared to non-LTCH users. A Lewin study used similar methods and found similar results. While their episode definition was slightly different (180 day fixed episode windows), they too found higher Medicare payments among LTCH users (Dobson et al, 2004). Like MedPAC, using an alternative Heckman model, they discovered lower Medicare payments among LTCH users once they controlled for selection bias.

3.1.4 Average IPPS Outlier Payments

MedPAC (2004) cited lower outlier payments as one of the reasons LTCH patients had lower IPPS costs than similar non-LTCH patients. In addition, their analysis comparing HwH to freestanding LTCHs found that HwHs had a higher proportion of cases that were IPPS outliers compared to freestanding LTCHs. However, questions still remain concerning the characteristics and patterns of care of IPPS outlier patients- both those transferred to LTCHs as well as those not using LTCHs -- compared to clinically similar LTCH users. Little research has been done on this issue.

3.1.5 Readmission Rates

MedPAC found that LTCH users were readmitted to IPPS hospitals 26 percent less often than similar patients who did not use LTCHs. They noted that this finding was expected since LTCHs are acute hospitals and typically have greater capacity to care for clinically difficult patients relative to other post acute care settings, particularly skilled nursing facilities.

3.1.6 Mortality Rates

MedPAC (2003) found that patients who used LTCHs in 2001 were more likely to die than patients who did not. This was true for patients with 41 out of 44 DRGs and for patients across all severity levels. They note that this may be due to unmeasured severity of illness among LTCH patients. Their 2004 analysis examined mortality rates among LTCH users using several approaches: ordinary least squares (OLS) regression, an instrumental variable approach, and a Heckman model that attempted to control for selection bias. Findings varied according to the particular model applied, but each suggested LTCH users had a higher probability of death, or were sicker than non-LTCH users. With OLS, there was little difference in mortality rates between LTCH patients and similar non-LTCH patients, while the instrumental variables approach found higher rates of mortality among LTCH users, and the Heckman model generated lower rates of mortality after controlling for patient selection factors. Using similar types of multivariate models, Lewin found similar results (Dobson et al, 2004). Their OLS model found a significant 4 percent increase in mortality, while their Heckman model found a 25 percent decrease in death.

3.1.7 ICU Use

MedPAC also characterized the type of care provided when patients did not have a local LTCH. Interviews conducted with LTCH administrators, physicians, and nurses found that these patients were sometimes treated in ICU "step-down" units, some of which specialize in pulmonary conditions, as an alternative to LTCHs. They also reported that IPPS hospitals without step-down units may keep patients in a critical or intensive care bed longer or transfer them to a medical bed within the IPPS. However, the empirical analysis examining use of ICUs among post acute patients likely to use an LTCH has not been done.

3.1.8 Patient Severity

Previous analyses of LTCH patients have relied on APR-DRGs to classify patients into severity groups (MedPAC 2003, MedPAC2004, Lewin 2004). MedPAC's 2003 analysis found similar severity levels among post acute care users both in markets with and without LTCHs. In comparing patients within LTCH markets areas, they found that LTCH patients in the highest severity levels (levels 3 and 4) had shorter IPPS hospital LOSs than non-LTCH patients. They also found that while LTCHs do not save Medicare money, Medicare costs among the most severely ill patients who entered LTCHs are comparable to the costs of similar patients who receive care in other settings (2004). Furthermore, they found that tracheostomy patients who used LTCHs actually saved Medicare money compared to patients in the same DRG using other providers. At the same time, they cautioned that their analysis may overstate the economic benefits of LTCHs to the Medicare program, since their analysis was based on 2001 actual spending, a year when IPPS outlier payments were unusually high and which preceded the implementation of the LTCH PPS.

Analyses conducted by Lewin for the National Association of Long-Term Hospitals (NALTH) contended that APR-DRGs may not fully capture differences in severity between LTCH and non-LTCH patients (Dobson et al., 2004). CMS also noted several concerns associated with adopting a payment system based on APR-DRGs including its complexity, clinical subjectivity, and utility for Medicare PPS. In particular, they reported variation among physicians in their assignment of specific cases to particular APR-DRGs or severity groups (CMS, 2002). Consensus is lacking on the best way to measure patient severity.

3.2 Treatment Across Different Types of LTCHs

3.2.1 New versus Old Facilities

As discussed in Chapter 2, LTCHs experienced several stages of development beginning with the early emergence of facilities providing chronic care, followed by LTCHs specializing in reparatory care, and more recently, LTCHs located within IPPS hospitals known as hospitals within hospitals (HwHs). Lui et al. (2001), analyzed differences at the facility level using 1997 Medicare claims and costs reports. This included an examination of structural characteristics and aggregate utilization and cost comparisons. More recently, MedPAC (2004b) conducted patient-level analysis using 2001 Medicare claims, which examined cases within each LTCH type by DRG and severity.

3.2.2 Hospitals Within Hospitals

Much of the recent growth in LTCHs occurred among Hospitals within Hospitals (HwH), which are LTCHs located within host IPPS hospitals. Between 1995 and 2002, the number of HwHs increased from 32 to 132 with related Medicare payments rising from $135 million to $817 million (OIG, 2004). The emergence of HwHs raised concern over the unbundling of care. Not only might an IPPS hospital quickly discharge a patient with an expected long stay to its LTCH HwH, but strong evidence also suggests that HwH LTCHs may also "ping-pong" these cases more frequently back to IPPS or keep them longer to qualify for an outlier payment. In 1999, while LTHCs were still operating under a TEFRA cost-based payment system, CMS responded with a regulation that imposed payment limits on HwHs that readmitted more than five percent of their patients who were discharged from the host IPPS hospital during a cost reporting period (CMS, 1999). In 2004, the OIG conducted a study of 87 HwHs established between 1995 and 2002 and found that 19 exceeded the allowable five percent threshold at least once between September and December 2002, and many of these readmissions involved patients in high-cost DRGs.

MedPAC (2004) also analyzed HwHs and found that, on average, they are smaller than freestanding LTCHs with an average of 36 beds compared to 111 beds in freestanding LTCHs. They also found that regardless of an LTCH's location (within a IPPS hospital or freestanding) they tended to have strong relationships with a single IPPS hospital. HwHs received 61 percent of their cases from their most frequent referring hospital, while freestanding hospitals only received 42 percent of their cases from an IPPS hospital. In addition, MedPAC found that HwHs had a higher proportion of transfers that were IPPS outliers compared to freestanding LTCHs.

With the implementation of the LTCH PPS, CMS revised it's HwH policy as outlined in Section 2.2. Current policy is phasing in limitations on the proportion of HwH patients that may be admitted from a host hospital. Since October 1 2004, up to 75 percent of an HwH patients could be host hospital discharges. Those exceeding the threshold are subject to payment adjustments. In October 2006, this percentage will decrease to 50 percent, and in October 1, 2007, it will drop to 25 percent. Researchers have yet to examine these recent and unfolding HwH requirements.

3.3 Remaining Research Questions

While much research has been completed to determine whether there are differences between patients treated in LTCHs and other similar patients not using these facilities, many questions remain before appropriate criteria can be established. As noted in the previous section, little is known about the relative roles of the IPPS hospitals and the LTCHs. Comparisons of the long stay IPPS case episode of care patterns, costs per site, and resources use of the patients treated in LTCHs is needed. Simulating cost differences between the groups may also be fruitful for understanding the role of the different base rates as they impact Medicare's cost-effectiveness.

Second, better consensus on appropriate measures of severity for LTCH users is needed. This is a key area of distinction between LTCH patients and those treated in other hospitals, yet the field lacks a good measure. More information is needed on available and feasible options for measuring severity of illness among LTCH users.

SECTION 4
MEDICARE CERTIFICATION REQUIREMENTS

MedPAC's recommendations for patient and facility level criteria included many factors that could be useful for distinguishing LTCH patients from other types of patients. Some of these criteria may already be used for hospital certification or for certification in a particular specialty area. Others may be used as standard practice at these hospitals, such as interdisciplinary team treatment of complex cases. Still, they may not be nationally uniform. Understanding the types of criteria that are currently used to either determine appropriate admissions to LTCHs or certify LTCH hospitals will be important for assessing the burden associated with MedPAC's recommendations. MedPAC proposed two types of criteria.

Their facility criteria included the following:

- ***A patient review process*** to screen patients prior to admission and throughout their stay to ensure that they require the level of care offered by LTCHs;
- ***A standard patient assessment tool*** to be used by all LTCHs that can provide a uniform assessment of LTCH patients and support outcomes measurement by collecting admission and discharge scores.
- ***Level of physician availability***, which may provide an important distinction between LTCHs and SNFs.
- ***Average Medicare LOS greater than 25 days,*** which is currently the only criterion placed on LTCHs but which does not prevent substitution of LTCH for SNFs; and
- ***Multidisciplinary team treatment*** that requires a diverse mix of staff to meet the complex needs of LTCH patients.

In addition, MedPAC offered the following examples of patient criteria for admission to LTCHs.

- ***National admission and discharge criteria*** that are sufficiently detailed and clinically relevant and that could be used uniformly across facilities;
- ***Minimum staff ratios per patient per day*** to ensure that LTCHs are providing intensive care to clinically complex patients;
- ***Patient mix and severity*** that could ensure that LTCH are treating patients who are severely ill at admission as evidenced by diagnostic categories and appropriate severity measures.

Many of these criteria may be used by Quality Improvement Organizations in their screening for appropriate use of facilities in the Medicare program. QIOs are mandated to study a sample of cases admitted to LTCHs. Understanding the types of tools they are using to screen patients, and the variation that exists in the field regarding appropriate measures of quality will be important baseline information for assessing the feasibility of these criteria.

Current certification requirements for hospitals and skilled nursing facilities that treat the types of patients described in Section 3 are included in ***Appendix A***. This information is based on information from the Federal Register and Medicare Program manuals. It is useful for

identifying the degree to which facility functions are differentiated, patient review procedures are mandated, and other criteria such as staffing, length of stay or specific conditions are identified.

Many of the QIO directives are prescriptive about the types of factors to consider without being specific and mandating standard measures. Information needs to be collected from the QIOs regarding the types of tools they use to identify appropriate use of these facilities.

Second, some of the facility criteria proposed by MedPAC may be collected by Joint Commission on Accreditation of Healthcare Organizations (JCAHO) in its provider certification process. Information from them is needed on the standards currently used to certify different types of hospitals.

SECTION 5
PROJECT APPROACH FOR PHASE II

This project is intended to assess the feasibility of patient and facility level characteristics to determine appropriate use of LTCHs. This effort will be multi-faceted. Several types of data sources will be used to address these two issues, including administrative data, such as Medicare claims as well as primary data collected through site visits and interviews, and secondary analysis of existing documents and regulatory requirements.

Patient Level Criteria. First, we will investigate the appropriateness of patient level criteria by determining whether differences exist between patients using LTCHs and other types of potentially substitute providers. We have seen that certain types of cases may be treated in alternative inpatient settings and that some of these differences may be associated with varying outcomes.

Patient level criteria will be investigated using two types of data sources. First, RTI will analyze Medicare claims data to study differences in utilization and Medicare payments for LTCH-like patients who are treated in other acute hospitals compared to those treated in LTCHs. Of particular interest is the patient treated in the acute care hospital for whom an IPPS outlier payment is made. This case will be compared to LTCH cases with similar diagnosis, severity, comorbidities, age, and sex to study differences in episode costs and length of stay as well as costs and lengths of stay in each provider used during the episode. Past work has compared acute care hospital cases but has not isolated the analysis to those most similar in terms of length of stay. Acute care patients in this analysis will be limited to those for whom an outlier payment was made under the IPPS. Their treatment patterns, resources used, and Medicare costs will be compared with LTCH admissions – both direct admits and those admitted as discharges from short stay acute care hospitals. Payments will be simulated for the two cases to see how different base rates affect total costs.

A similar comparison will be made for a subset of cases that are typically treated in inpatient rehabilitation facilities to analyze cost and use differences between IRFs and LTCHs in their treatments of similar patients. This analyses will investigate the types of resources or procedures used in each inpatient setting. Transfers to other settings, rehospitalization rates, and death rates will also be considered.

Second, QIOs will be interviewed regarding the types of criteria they use to assess appropriateness of care in the LTCH. These interviews will provide information on the extent to which the field has standardized means of determining appropriateness of care in each setting. QIO tools will be compared across regions for their usefulness as standardized screening or assessment tools. Examples of the tools used to determine whether a patient requires a)short term acute inpatient care, b) long term acute inpatient care, c) inpatient rehabilitation services, d) inpatient psychiatric care, or e) inpatient skilled nursing facility level care will be important for assessing the extent to which common standards are applied to these determinations. This will provide information on the feasibility of using a standard patient assessment tool.

Facility Level Criteria. MedPAC's proposed facility level criteria will also be assessed using claims, interviews, site visits, and document reviews. First, Medicare claims will be used

to analyze facility level differences in the types of patients treated in LTCHs. As noted in Section 2, LTCHs are a heterogeneous group of providers. Using data from the POS or OSCAR certification files, we will analyze the extent to which patient criteria could be applied across all LTCHs or only a subset of LTCHs. This will address the question of whether standardized rules are appropriate for all LTCHs. For example, comparisons of the resources used in IPPS-outlier cases with LTCH cases may vary depending on the age, ownership, affiliation, and location of an LTCH.

Second, claims data are limited to the data elements they contain. Interviews will be conducted with JCAHO to determine the types of criteria they use to certify hospitals, or in the case of LTCHs, designate hospitals and how these criteria vary across the different types of hospitals. Many of these standards will reflect standardized measures of structure and process of care, and to some extent, outcomes. Understanding whether, and how, these measures vary across different types of hospitals will be useful for setting a baseline of the types of information currently required for participation in Medicare. This will identify the extent to which each type of hospital requires interdisciplinary treatment teams, the composition of those teams in terms of disciplines involved and the frequency with which any of the professionals must be involved in a patient's case.

Third, interviews will be conducted with medical directors from each of the various types of hospitals, particularly those in market areas with more than one type of hospital. These directors will be interviewed regarding the types of cases they treat and how they are distinguished from cases treated in one of the alternative settings. The providers will be asked for their medical admissions criteria as well as any other screening tool used by the admissions offices or discharge planners.

In addition, they will be given vignettes of "typical" LTCH cases and asked to describe the type of resources that would be used to treat that type of case in their facility, including the types of treatment team members, equipment and supplies, expected lengths of stay, potential complications and other factors that might distinguish their cases from those treated in other inpatient settings. Participants will be selected to represent areas with and without LTCHs as well as represent provider systems with and without LTCHs.

Some of these interviews will be conducted as part of a site visit, if resources allow. Eight site visits will be conducted to allow in-person interviewing and comparison of facility differences between LTCHs, IRFs, and other providers used to substitute for LTCH services in areas without LTCHs. Half the sites will be in markets with LTCHs and half will be in markets without LTCHs. Sites will be selected on the basis of affiliated providers, including IRFs, psychiatric hospitals/units, SNFs, and acute hospitals with specialty units for complex cases. LTCH ownership will also be considered in selecting facilities. Staffing, equipment, screening and referral protocols will be compared across sites in general, and for select populations commonly treated in LTCHs. The site visit team will include physician input on at least half the trips.

These three sets of activities (claims analysis, interviews with certification and regulation specialists, and site visit/interviews with providers) will be conducted concurrently. Each component will provide an empirical or qualitative component to the larger issue of identifying

which criteria are appropriate for defining LTCHs and how feasible these different criteria would be to implement. The results of these analysis will be provided in a final report to CMS.

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APPENDIX A
CERTIFICATION REQUIREMENTS

	Short Stay Acute Inpatient Hospital	Inpatient Rehabilitation Facility (IRF)	Long-Term Care Hospital (LTCH)	Skilled Nursing Facility(SNF)
Certification Requirements	• [1]An institution which is primarily engaged in providing to inpatients, by or under the supervision of physicians: • Diagnostic and therapeutic services for medical diagnosis, treatment, and care of injured, disabled, or sick persons, or • Rehabilitation services for the rehabilitation of injured disabled, or sick persons • Has in effect a hospital utilization review plan • Meets other health and safety requirements found necessary by the Secretary of Health, Education and Welfare (These additional requirements may not be higher than comparable ones prescribed for accreditation by the Joint Commission on Accreditation of Hospitals with certain exceptions specified in the law.) • Hospital for emergency purposes: an emergency services hospital is a nonparticipating hospital which meets the requirements of the law's definition of a "hospital" relating to full-time nursing services and licensure under State or local law. In addition, the hospital must be primarily engaged in providing, under supervision of doctors of medicine or osteopathy, services described in the definition of hospital, and must not be primarily engaged in providing	• [2]Cost reporting periods after 7/1/04 and before 7/1/05, must have 50% of inpatients in DRGs below • 7/1/05-7/5/06, 60% rule • 7/1/06-7/1/07, 65% rule • 7/1/07 – must have at least 75% required intensive rehabilitation services • Conditions- stroke, spinal cord injury, congenital deformity, amputation, major multiple trauma, hip fracture, brain injury, neurological disorders, burns, arthritis, joint inflammation, knee or hip replacement • To be classified as an IRF unit, the unit must be part of an institution that participates in Medicare as a hospital and is not excluded in its entirety from the acute inpatient PPS • To be classified as an IRF unit, the hospital must have a utilization review plan including separate standards for the IRF unit	[3]An HwH is a hospital that occupies space in a building also used by another hospital, or in one or more separate buildings located on the same campus as buildings used by another hospital. HwHs must meet the following criteria. • It must have a separate governing body, chief medical officer, medical staff, and chief executive officer. • In addition, the hospitals must meet at least one of the following criteria. 1. It must perform the following basic functions through the use of employees or contracts/agreement with entities other than the hospital occupying space in the same building or on the same campus: – Quality assessment and performance improvement, – Medical staff, – Nursing services, – Medical records services, – Pharmaceutical services, – Laboratory services, – Utilization review, – Infection control, – Discharge planning, and – Organ, tissue, and eye procurement. 2) Services obtained under contracts or other agreements with the hospital occupying space in the same building or on the same campus (or with a third party that controls both	• [1]SNF is an institution or distinct part of institution (such as SNH or Rehab center) with a transfer agreement in effect with one or more participating hospitals • Primarily engaged in providing skilled nursing care and related services for residents requiring medical or nursing care, and rehabilitation services for injured, disabled or sick persons • [4]Residents must be free from any significant medication errors, and medication error rates as a whole must be less than 5%

	Short Stay Acute Inpatient Hospital	Inpatient Rehabilitation Facility (IRF)	Long-Term Care Hospital (LTCH)	Skilled Nursing Facility(SNF)
Certification Requirements (continued)	skilled nursing care and related services for patients who require medical or nursing care		hospitals) can comprise no more than 15% of the hospital's total inpatient operating costs 3) At least 75% of the inpatient population must be referred to the hospital from a source other than another hospital occupying the same building or on the same campus.[a] A satellite facility is a part of a hospital that provides inpatient services in a building also used by another hospital, or in one or more entire buildings located on the same campus as buildings used by another hospitals. Satellite LTCHs must meet the following criteria. • For the most recent costs reporting period beginning October 1, 1997, the hospitals number of State-licensed and Medicare-licensed beds (including beds in satellite facilities) cannot exceed the number of beds on the last day of the hospital's last cost reporting period beginning before October 1, 1997. • It cannot be under control of the governing body or chief executive officer of the hospital in which is it located, and it furnishes inpatient care through the use of medical personnel who are not under the control of the medical staff or chief medical officer of the hospital in which it is located. • It must maintain separate admission and discharge	

	Short Stay Acute Inpatient Hospital	Inpatient Rehabilitation Facility (IRF)	Long-Term Care Hospital (LTCH)	Skilled Nursing Facility(SNF)
Certification Requirements (continued)			records from the hospital in which it is located. • Its beds must be physically separate from the beds hospital in which it is located. • It must be served by the same fiscal intermediary as the hospital of which it is part. • It must be treated as separate cost center of the hospital of which it is a part. • It must use an accounting system that properly allocates costs and maintains statistical data to support the basis of allocation. • It must report its costs on the cost report of the hospital of which it is a part, covering the same fiscal period and using the same method of apportionment as the hospital of which it is a part.	

	Short Stay Acute Inpatient Hospital	Inpatient Rehabilitation Facility (IRF)	Long-Term Care Hospital (LTCH)	Skilled Nursing Facility(SNF)
Patient Review Process		• [2]The IRF has in effect a preadmission screening procedure under which patient's condition and medical history are reviewed to determine whether patient is likely to benefit significantly from an intensive inpatient rehabilitation program or assessment • IRF unit must have preadmission criteria that is uniform across Medicare and non-Medicare patients • IRF unit must have admission and discharge records that are separately identified from those of the hospital in which it is located		• [1]At the time each resident is admitted, the facility must have physician orders for the resident's immediate care • After January 1, 1989, SNFs must not admit any resident with mental illness of mental retardation
Staffing *Staffing (continued)*	• [1]Has bylaws in effect concerning its staff of physicians • Requires that every patient must be under the care of a physician • Provides 24-hour nursing services rendered by or supervised by a registered professional nurse, and has a licensed practical nurse or registered professional nurse on duty at all times	• [2]IRF **must** furnish through the use of qualified professionals: rehabilitation nursing, physical therapy, occupational therapy**, and, as needed**, speech therapy, social or psychological services, and orthotic and prosthetic services • IRF must use coordinated, multi-disciplinary team approach to each patient as documented by entries in medical record, to note status in relationship to goal attainment, and team must hold conferences at least once every two weeks determine appropriateness of treatment (Attending physician, rehab nurse, PT/OT and as needed SLP and/or Psych) • IRF has a director of rehabilitation who provides services to the hospital and its inpatients, is a MD or DO, licensed by a state to practice medicine or surgery and has completed at least 1 year of hospital internship and at least 2 years of rehabilitation training or experience • On the first day to qualify as an IRF		• [1]The administrator of the SNF is directly accountable to the management of the institution of which the SNF is a distinct part • The SNF must have a designated medical director • SNF must provide designated staff person for assisting and responding to written requests from group meetings • Director of ongoing activities program who must be qualified therapeutic recreation specialist, or meets experience requirements, or is a qualified OT or OT assistant • SNF with over 120 beds must have full-time qualified social worker • Comprehensive care plans must be prepared by interdisciplinary team including attending physician, registered nurse,

	Short Stay Acute Inpatient Hospital	Inpatient Rehabilitation Facility (IRF)	Long-Term Care Hospital (LTCH)	Skilled Nursing Facility(SNF)
		unit, the unit must be equipped, staffed and capable of providing rehabilitation care even if there are no patients in the unit at that date • IRF units must have a Director of Rehabilitation who provides services to unit and inpatients for at least 20 hours a week		other appropriate staff depending on resident's needs, participation of resident and their family or legal representatives • Provides 24-hour nursing care to residents • Must employ qualified dietitian either full-time, part-time or as a consultant • Must assist patients in providing routine and 24-hour dental care
Length of Stay			• Average Medicare Inpatient LOS greater than 25 days • If excluded from 1986 PPS, must have LOS for Medicare and non-Medicare greater than 20 days	

	Short Stay Acute Inpatient Hospital	Inpatient Rehabilitation Facility (IRF)	Long-Term Care Hospital (LTCH)	Skilled Nursing Facility (SNF)
Conditions	• [1]Hospital definition excludes tuberculosis and psychiatric hospitals – these facilities are included in the Medicaid definition of hospitals, but are defined separately under Medicare • A psychiatric hospital is an institution which is primarily engaged in providing by or under the supervision of a physician, psychiatric services for the diagnosis and treatment of mentally ill persons • A tuberculosis hospital is an institution which is primarily engaged in providing by or under the supervision of a physician, medical services for the diagnosis and treatment of tuberculosis • To be eligible as a psychiatric or tuberculosis hospital, the facility must: – Have in effect a utilization review plan – Meet additional staffing and medical record requirements necessary to carry out active program of treatment and intensive care • A distinct part of a psychiatric or tuberculosis institution may qualify as a psychiatric or tuberculosis hospital independently of the institution of which it is a part, if the part meets certain specified requirements	• [6]Cost reporting periods after 7/1/04 and before 7/1/05, must have 50% of inpatients in DRGs below – 7/1/05-7/5/06, 60% rule – 7/1/06-7/1/07, 65% rule – 7/1/07 – must have at least 75% required intensive rehabilitation services – Conditions- stroke, spinal cord injury, congenital deformity, amputation, major multiple trauma, hip fracture, brain injury, neurological disorders, burns, arthritis, joint inflammation, knee or hip replacement	• [4]If excluded from 1986 PPS, at least 80% of annual Medicare discharges for 12-month cost reporting period ending FY1997 with PDx reflecting neoplastic disease	• [1]SNF does not include institutions primarily engaged in treatment of mental diseases or tuberculosis

Functional Improvement	• [7]Please see discussion of Quality Improvement Organizations (QIOs) on next page	• [7]Please see discussion of Quality Improvement Organizations (QIOs) on next page	• [7]Please see discussion of Quality Improvement Organizations (QIOs) on next page	• [3]Facility must promote maintenance or enhancement of each resident's quality of life • SNF must conduct initially and periodically a comprehensive, accurate, standardized, reproducible assessment of each resident's functional capacity • A comprehensive care plan must be developed within 7 days after completion of the comprehensive assessment, and prepared by an interdisciplinary team • SNF must ensure that resident's ADLs do not diminish unless circumstances of patient's clinical condition render diminution unavoidable. This includes ability to: bathe, dress and groom; transfer and ambulate; toilet; eat; and use speech, language, or other functional communication systems • Criteria must be met for: – Vision and hearing: ensure that residents receive proper treatment and assistive devices – Pressure Sores: pressure sores do not develop unless clinical condition makes them unavoidable, and residents receive treatment to promote healing, prevent infection, and prevent new sores from developing – Urinary Incontinence: residents not catheterized unless necessary, and residents with bladder control problems receive treatment and services necessary to prevent UTIs and restore bladder functioning as much as possible – Range of motion: residents do not developed reduced range of motion unless clinically unavoidable and residents with range of motion limitations receive treatment and services necessary to increase range of motion and to prevent its reduction – Mental and psychosocial functioning: residents receive services to correct mental health problems and do not develop new mental health problems unless clinically unavoidable – Naso-gastric tubes, Accidents, Nutrition, Hydration and other special services (injections, respiratory care, prostheses, etc.) – Residents drug regimen remains free from unnecessary drugs and excessive dosages • [7]Please see discussion of Quality Improvement Organizations (QIOs) on next page

Quality Improvement Organizations (QIOs)	• [7] QIOs are required to review those services furnished by physicians, other health care professionals, providers and suppliers • QIOs must determine whether the services are or were reasonable and medically necessary for the diagnosis and treatment of illness or injury or to improve functioning of a malformed body member or for prevention of illness or for the palliation and management of terminal illness • QIOs must ensure that beneficiary care meets professionally recognized standards of health care • QIOs determine whether services furnished or proposed to be furnished on an inpatient basis could, consistent with provisions of appropriate medical care, be effectively furnished more **economically** on an outpatient basis or in an inpatient health care facility of a different type • *Every hospital seeking payment for services furnished to Medicare beneficiaries must maintain a written agreement with a QIO operating in the area in which the hospital is located* • QIOs establish criteria based upon typical patterns of practice in the area or national criteria and may establish specific standards for certain locations and facilities in the area if patterns of practice are substantially different from the remainder of the QIO area and there is a reasonable basis for the difference which makes the variation appropriate • QIO uses criteria to determine: necessity for facility admission and continued stay, necessity for surgery and other diagnostic and therapeutic procedures, appropriateness of providing services at a particular facility or level of care

[1] Skilled Nursing Facility Medicare Providers Manual, CMS Website, Chapter 2 – Coverage of Services

[2] CMS Manual System, Pub. 100-04 Medicare Claims Processing, June 25, 2004, Transmittal 221, Change Request 3334

[3] Code of Federal Regulations, October 1, 2004, 42 CFR 412.22 (e) and (h), "Excluded hospitals within hospital units: General Rules, Hospitals within Hospitals and Satellite Facilities."

[4] Code of Federal Regulations, October 1, 2003, 42CFR412, "Prospective Payment Systems for Inpatient Hospital Services."

[5] Federal Register, Friday, May 7, 2004, 42CFR412, "Medicare Program; Prospective Payment System for LTCH; Annual Payment Rate Updates and Policy Changes; Final Rule"

[6] CMS Manual System, Pub. 100-04 Medicare Claims Processing, October 29, 2004, Transmittal 347, Change Request 3503

[7] Code of Federal Regulations, January 1, 2003, 42CFR476, "Utilization and Quality Control Review"