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Final Project Report

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1.0 Purpose

The Centers for Medicare and Medicaid Services (CMS) contracted with AdvanceMed, a CSC Company (formerly DynCorp), to provide an analysis of calendar year (CY) 2002 outpatient therapy services under the Medicare Part B benefit. In particular, CMS requested that we conduct a number of activities that supplement prior utilization analysis[1] [2] with more current claims information. This report summarizes the findings described in a series of four analytic reports designed to support ongoing CMS activities at developing operationally efficient methods for the appropriate payment of outpatient therapy claims.

1.1 Background

Outpatient therapy services have been an essential component of the Part B benefit since the enactment of Medicare in 1965. Outpatient therapy services include physical therapy (PT), occupational therapy (OT), and speech-language pathology (SLP) services. Over time, there has been growth in the number and types of providers, as well as in the range of services furnished under this benefit. This growth in the scope of the benefit and the increased access to qualified providers has been reflected in an increase in Medicare expenditures over time.

When Congress responded to the growth in overall Medicare expenditures by enacting the Balanced Budget Act (BBA) of 1997, provisions were included specifically directed at controlling outpatient therapy payment growth[3]. These provisions included:

- The imposition of a single fee schedule that applied to all outpatient therapy providers beginning in 1999[4];
- The imposition of two annual per-beneficiary outpatient therapy benefit limitations (caps) of $1500[5]; and,
- The inclusion of certain services furnished by or as incident-to a physician (or specific non-physician practitioners[6]), within the Medicare definition of outpatient therapy services to be counted against the applicable PT/SLP or OT financial limitations.

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[1] Olshin, J., Ciolek, D., and Hwang, W.. *Study and Report on Outpatient Therapy Utilization: Physical Therapy, Occupational Therapy, and Speech-Language Pathology Services Billed to Medicare Part B in all Settings in 1998, 1999, and 2000*. September 2002. CMS Contract No. 500-99-0009/0002. Available at: http://www.cms.hhs.gov/medlearn/therapy/dyncorprpt.asp. Last accessed: October 18, 2004.

[2] AdvanceMed. *Therapy Services Error Rate Study*. April 2003. CMS Contract No. 500-99-0009/0002.

[3] Pub. L. 105-33 *Balanced Budget Act (BBA) of 1997.* Enacted August 5, 1997.

[4] Pub. L. 105-33 *(BBA)* §4541(a)(2)(B). Prior to 1999, institutional providers such as outpatient hospital, skilled nursing facility (SNF), comprehensive outpatient rehabilitation facility (CORF), outpatient rehabilitation facility (ORF), and some home health agencies (HHA) were paid on a reasonable cost basis for outpatient therapy services. Starting January 1, 1999, all outpatient therapy providers are paid at a rate that equals 80 percent of the lesser of the actual charge or the applicable fee schedule.

[5] Pub. L.105-33 *(BBA)* §4541(c). Starting January 1999, beneficiaries were limited to $1500 in allowed PT and SLP services (combined amount) annually, and had a separate limit of $1500 placed upon the annual use of OT services. Expenditures for services furnished by hospital outpatient therapy providers were exempt from the caps. The cap amounts are indexed by the Medicare Economic Index (MEI) each year beginning in CY 2002.

[6] Physician Assistants (PA), Nurse Practitioners (NP), and Clinical Nurse Specialists (CNS) are the only non-physician practitioners permitted payment for outpatient therapy services if they are permitted to furnish such services under state law.

As a result of subsequent Congressional actions[7] [8], the financial limitations were only in effect during CY 1999, and from September 1, 2003 through December 7, 2003, at which time Congress re-enacted a moratorium to financial limitations on outpatient therapy services[9]. The current moratorium is effective from December 8, 2003 through December 31, 2005. Without further Congressional action, payment cap reimplementation will resume in January 2006.

When Congress first imposed the outpatient therapy financial limitations in the BBA of 1997, it also requested that the Secretary of Health and Human Services (HHS) also investigate the feasibility of establishing a "…revised coverage policy of outpatient physical therapy services and outpatient occupational therapy services under the Social Security Act based on classification of individuals by diagnostic category and prior use of services, in both inpatient and outpatient settings in place of uniform dollar limitations….," and, "...how such a system of durational limits by diagnostic category might be implemented in a budget-neutral manner[10]."

Subsequently, in 1999, Congress requested that the Secretary of HHS also conduct analyses of outpatient therapy utilization patterns by several variables including nationwide patterns, patterns by region, types of settings, and diagnosis or condition, for PT, OT and SLP services[11]. In 2000, Congress added another request related to the development of an outpatient therapy patient assessment instrument. In particular, the Secretary of HHS is to investigate and "…report [in 2005] on the development of standard instruments for the assessment of the health and functional status of [outpatient therapy patients], and include in the report a recommendation on the use of such standard instruments for payment purposes[12]." Most recently, Congress requested that the Comptroller General of the United States "…identify conditions or diseases that may justify waiving the application of the therapy caps….[13]" Such requests suggest that any alternative outpatient therapy payment system should focus on the individual beneficiary's need for services, rather than options focusing on provider setting differences.

To date, CMS has made public a number of studies related to outpatient therapy services that are available on the web. In September 2000, a report was prepared by the Urban Institute to address activities requested in the BBA of 1997 that considered a revised coverage policy for outpatient therapy services[14]. Their conclusion was that there was insufficient information available to design and implement an alternative payment system for outpatient therapy services based upon diagnosis or other clinical indicators within a reasonable period of time. The Urban Institute Report specifically noted that existing Medicare Prospective Payment Systems (PPS) that use patient classification

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[7] Pub.L. 106-113 *Balanced Budget Refinement Act (BBRA) of 1999* §221(a). Enacted November 29, 1999. Placed a two-year moratorium on the enforcement of the financial limitations (effective CY 2000-2001).
[8] Pub.L. 106-554 *Medicare, Medicaid and SCHIP Benefits Improvement and Protection Act (BIPA) of 2000* §421(a). Enacted December 21, 2000. Provided an additional one-year extension to the moratorium on the therapy caps (effective CY 2002).
[9] Pub.L. 108-173 *Medicare Prescription Drug, Improvement, and Modernization Act (MMA) of 2003* §624.2. Enacted December 8, 2003.
[10] Pub.L. 105-33 §4541(d)(2).
[11] Pub.L. 106-113 §221(d)(1)(A).
[12] Pub.L. 106-554 §545.
[13] Pub.L. 108-173 §624(c).
[14] Maxwell, S., and Baseggio, C.. *Outpatient Therapy Services Under Medicare: Background and Policy Issues.* September 2000. HCFA Contract No. 500-95-0055. Available at: http://www.cms.hhs.gov/medlearn/therapy/bkgdpolicy.asp. Last accessed October 19, 2004.

models as the basis of payment (e.g. Part A hospital, skilled nursing facility [SNF]) and home health agency [HHA] PPS) required several years to develop. However, the Urban Institute Report indicated that some near-term options might be administratively feasible to reduce unnecessary Medicare spending for outpatient therapy services while a long-term solution based upon beneficiary clinical characteristics is developed.

Subsequent outpatient therapy studies were conducted by the Urban Institute in 2001[15] and by AdvanceMed[16] in 2002 analyzing outpatient therapy utilization from CY 1998 through CY 2000. These studies described the changes in Medicare expenditure patterns that occurred over this three year period for a number of variables including; beneficiary demographics (age, gender, race, state of residence, and CMS region), claim diagnosis, and provider setting. They also provided gross estimates of the dollar impact of the universal imposition of the fee schedule across all outpatient therapy provider settings and of the therapy caps as applied during CY 1999. These studies identified broad variations in the delivery and expenditures associated with outpatient therapy services.

Both the Urban Institute and AdvanceMed studies reported that Medicare expenditures for outpatient therapy services were reduced by thirty-four percent in CY 1999, and the great majority of the reduction was attributed to the imposition of the fee schedule that replaced cost-based payments to institutional providers. Significant limitations in the claims data available for CY 1998 through CY 2000[17], and the limited application of the outpatient therapy caps in CY 1999, prevented definitive descriptions of utilization patterns of specific therapy services, or of the potential impact of the financial limitations had they been enforced as enacted.

During 2004, AdvanceMed conducted a follow-on analysis of outpatient therapy utilization patterns using a 100% file of CY 2002 Medicare Part B claims to identify current utilization trends, addressing the following four specific objectives:

1. Identifying the feasibility of various outpatient therapy payment options and developing a strategy and general timeline necessary for the implementation of the various options;
2. Identifying potential program vulnerabilities/overpayments related to improper coding of outpatient therapy procedure codes, and the feasibility and impact of implementing automated edits to reduce such overpayments;

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[15] Maxwell, S., Baseggio, C., and Storeygard, M.. *Part B Therapy Services Under Medicare in 1998-2000: Impact of Extending Fee Schedule Payments and Coverage Limits.* September 2001. HCFA Contract No. 500-95-0055. Available at: http://www.cms.hhs.gov/medlearn/therapy/impactcover.asp. Last accessed: October 19, 2004.

[16] Olshin, J., et al., *Study and Report….* September 2002.

[17] Prior to October 1, 2000, the Medicare National Claims History (NCH) data available for analysis (Version H) did not contain line payment amounts for outpatient therapy services of institutional providers, meaning that these studies could not determine if the billed line was allowed, or if it was allowed, what the payment was. Estimates presented in the CY 1998-2000 utilization reports present extrapolated payment estimates only. In addition, prior to CY 1999, institutional provider claims were not required to report specific dates of service (only claim range dates), which prevented accurate estimates of number of services furnished or number of treatment dates for particular conditions or diagnoses. Also, because of poor compliance of therapy modifier use among physician and non-physician practitioners during CY 1999, over twenty percent of outpatient therapy expenditures could not be attributed to either the PT/SLP or OT cap, thereby preventing accurate estimates of the cap impact.

3. Identifying various clinical and demographic characteristics of beneficiaries generating the highest expenditures, and,
4. The development and application of analytic models to outpatient therapy data in order to assist CMS in identifying if current claims data can be used to form the foundation for an episodic-based patient classification scheme.

Based upon these four objectives, a series of four reports were developed using CY 2002 claims data. They were:

- Strategy for Developing Short and Long-Term Therapy Payment Options[18];
- Feasibility and Impact Analysis: Application of Various Outpatient Therapy Service Claim HCPCS Edits[19];
- Utilization Analysis: Characteristics of High Expenditure Users of Outpatient Therapy Services in CY 2002[20]; and,
- Development of a Model Episode-Based Payment System for Outpatient Therapy Services: Feasibility Analysis Using Existing CY 2002 Claims Data[21].

These reports represent the first national study of outpatient therapy utilization of individual beneficiaries that permits a direct comparison of carrier and intermediary processed Part B claims to the level of individual procedures, and individual dates of service. The improvements in Version I of the National Claims History (NCH) file, implemented in October 2000, permitted much more precise estimates of outpatient therapy utilization patterns in 2002 than were possible in the prior analytic reports describing CY 1998 through CY 2000.

The following sections will summarize the findings of these four reports within the context of current CMS activities towards identifying and developing a beneficiary and condition centered payment policy that maintains beneficiary access to medically necessary outpatient therapy services equitably while controlling expenditures.

[18] Ciolek, D., Hwang, W., and Olshin, J.. *Strategy for Developing Short and Long-Term Therapy Payment Options.* April 2004. CMS Contract No. 500-99-0009/0009.
[19] Ciolek, D., and Hwang, W.. *Feasibility and Impact Analysis: Application of Various Outpatient Therapy Service Claim HCPCS Edits.* October 2004. CMS Contract No. 500-99-0009/0009.
[20] Ciolek, D., and Hwang, W.. *Utilization Analysis: Characteristics of High Expenditure Users of Outpatient Therapy Services in CY 2002.* October 2004. CMS Contract No. 500-99-0009/0009.
[21] Ciolek, D., and Hwang, W.. *Development of a Model Episode-Based Payment System for Outpatient Therapy Services: Feasibility Analysis Using Existing CY 2002 Claims Data.* October 2004. CMS Contract No. 500-99-0009/0009.

2.0 Summary of Outpatient Therapy Utilization during CY 2002

The findings in this section are presented within the context of relevant policy questions. In addition, the findings compare CY 2002 utilization patterns with those reported for prior years when appropriate to identify relevant changes in utilization patterns. Although we believe we identified nearly 100 percent of the claims for therapy services in 2002, and were able to match claims with individual beneficiaries, and were able to identify line payments for all procedures billed; the results are presented as estimates due to minor inherent rounding errors. However, these results are not subject to, and should not be confused with the larger sampling bias error reported in studies using a 5% file or other extracted databases.

2.1 Beneficiaries Who Received Outpatient Therapy Services

We estimate that there were 40.1 million beneficiaries that were enrolled in Medicare part B for at least one month during CY 2002. Of these, *3,747,395, or 9.3 percent received some form of outpatient therapy services* (Table 1). The 3,296 million beneficiaries that received PT represented 88 percent of all therapy users. Twenty percent of the outpatient therapy users (745,241) received OT services. In addition, the 367, 783 beneficiaries that received SLP services represented ten percent of therapy users. Some beneficiaries received more than one type of service.

2.2 Expenditures for Outpatient Therapy Services

During CY 2002, we estimate that the total Medicare expenditures for outpatient therapy services were $3,392,226,958. *This represents 2.3 percent of all Medicare Part B expenditures during CY 2002*[22]. The average annual expenditure per therapy user was $896 while the average annual expenditure per Part B enrollee was $85 (Table 1).

Table 1. Summary of outpatient therapy utilization during CY 2002

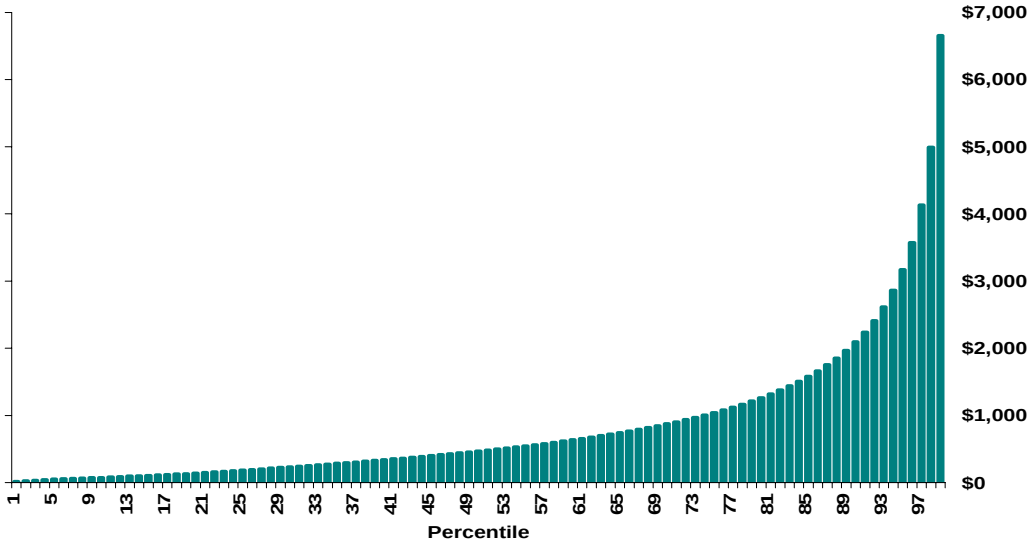
CY 2002	Total outpatient therapy users	Total expenditures	Percent of enrollees using therapy	Average annual expenditure per enrollee	Average annual expenditure per therapy user	Median (middlemost) expenditure per therapy user
Total	**3,747,395**	**$3,392,226,958**	**9.3%**	**$85**	**$896**	**$466**
PT	3,296,407	$2,544,116,563	8.2%	$63	$760	$447
OT	745,241	$611,906,952	1.9%	$15	$821	$449
SLP	367,783	$236,203,443	0.9%	$6	$643	$307

The median (middlemost) annual per-beneficiary expenditure for all therapy services in CY 2002 of $466 is nearly half of the average annual per-beneficiary expenditures. This indicates that most therapy users receive relatively modest amounts of therapy; however the average expenditures are skewed by a small percentage of beneficiaries receiving extensive amounts of outpatient therapy services (Figure 1). *With the significant skewing of the payment distribution observed, the median*

[22] Table II.C1. Operations of the SMI Trust Fund (Cash Basis) during Calendar Years 1970-2013 of the *2004 Medicare Trustees Report*, available at: http://www.cms.hhs.gov/publications/trusteesreport/2004/tr.pdf estimates total SMI benefit payments of $111 billion during 2002. Last accessed: October 8, 2004.

expenditure value ($466) is a better representation of the "typical" outpatient therapy patient than the average annual expenditure. In Figure 1, the median expenditure amount is represented by the 50th percentile.

Figure 1. CY 2002 Aggregate annual outpatient therapy user paid amount by percentile[23]



Physical therapy services accounted for $2.54 billion or 75 percent of all outpatient therapy expenditures. Occupational therapy services accounted for $612 million or eighteen percent, followed by speech-language pathology services with seven percent of all outpatient therapy expenditures at $236 million (Table 1).

For individual therapy services, the annual per-patient expenditure amounts ranged from a high of $821 for OT services, to $760 for PT services, to $643 for SLP services (Table 1). Similar to the pattern for total outpatient therapy utilization, the median expenditure amount for OT, PT and SLP services ($449 for OT, $447 for PT, and $307 for SLP) was significantly lower than the overall average expenditure amount, indicating that all three therapy types have a similar skewed distribution pattern where most users generate low expenditures, but the average payment is skewed high due to a relatively small number of beneficiaries with high expenditures.

2.3 Change in Number of Beneficiaries Receiving Outpatient Therapy Services

In the studies we have conducted regarding outpatient therapy services, we have reported that the number of beneficiaries receiving Part B therapy has increased from 3.51 million in CY 1998 to 3.75 million in CY 2002 (6.7 percent total), an average increase 1.68 percent per year[24] [25]. During the

[23] Source: Ciolek, D., and Hwang, W.. *Utilization Analysis.*.. October 2004. p. 13.
[24] For CY 2002 results: Ciolek, D., and Hwang, W.. *Utilization Analysis.*... October 2004. Section 3.1.
[25] For CY 1998-2000 results: Olshin, J., et al., *Study and Report*…. September 2002. Section 3.1.2.

same five-year period, the net increase of Part B enrollees eligible for the outpatient therapy Fee-for-Service (FFS) benefit increased an average of 1.63 percent per year[26] (Table 2).

Table 2. Number of outpatient therapy users in CY 1998 through CY 2002

Year	Total outpatient therapy users	Increase in therapy users from prior year[27]	Net increase Part B enrollees eligible for outpatient therapy FFS benefit
2002	3,747,395	2.2%	3.1%
2001	N/A	2.2%	3.1%
2000	3,589,865	4.8%	0.9%
1999	3,424,309	-2.5%	-0.6%
1998	3,511,793	N/A	-2.2%

This result suggests, despite the fluctuation of beneficiaries into and out of Medicare managed care plans from 1998-2002, that there has been no systematic change in the relative number of beneficiaries accessing the outpatient therapy benefit. As demonstrated in Table 2, between CY 2000 and 2002 the rate of increase in the number of beneficiaries receiving outpatient therapy services actually grew at a slower rate than the growth rate of eligible Part B FFS enrollees (2.2 % versus 3.1 % per year). *Therefore, there does not appear to be any evidence that more beneficiaries are receiving outpatient therapy services at a rate beyond the observed growth of Part B FFS enrollment.*

2.4 Change in Expenditures

We estimate that from CY 1998 to 2002, Medicare expenditures for outpatient therapy services increased from $2.33 billion to $3.39 billion representing an average increase of 11.5 percent per year. During the same five-year period, the net increase in total Part B Trust Fund expenditures also increased an average of 11.5 percent per year, increasing from $76.1 billion in 1998 to $111.0 billion in 2002[28] (Table 3). *This indicates that from 1998 to 2002, the <u>overall</u> growth rate of outpatient therapy expenditures compared to the Part B Trust Fund was essentially identical.*

[26] The basis for the estimates of "Net increase Part B enrollees eligible for outpatient therapy benefit FFS Benefit" is Table II.A3. Medicare Enrollment of the *2004 Medicare Trustees Report*, available at: http://www.cms.hhs.gov/publications/trusteesreport/2004/tabiia3.asp. Last accessed October 8, 2004. Since Part B enrollees have the option to participate in the Original Medicare FFS program or a Medicare Advantage (formerly Medicare+Choice) managed care plan. This estimate (and the estimates in Table 2) adjusts for annual fluctuations in Medicare Advantage enrollment (Part B enrollment = FFS enrollees + Medicare Advantage enrollees).

[27] Due to the absence of CY 2001 therapy user data, the estimated increase in therapy users in CY 2001 and 2002 represents one-half of the two-year increase observed from CY 2000 to 2002.

[28] The basis for estimates of "Increase total Part B Trust Fund expenditures from prior year" is Table II.C1. Operations of the SMI Trust Fund (Cash Basis) during Calendar Years 1970-2013 of the 2004 Medicare Trustees Report, available at: http://www.cms.hhs.gov/publications/trusteesreport/2004/tabiic1.asp.

Table 3. Total outpatient therapy expenditures CY 1998 through CY 2002

Year	Total outpatient therapy expenditures	Increase in therapy expenditures from prior year[29]	Increase total Part B Trust Fund expenditures from prior year[30]
2002	$3,392,226,958	22.9%	11.3%
2001	N/A	22.9%	12.1%
2000	$2,087,301,077	35.7%	10.2%
1999	$1,538,036,816	-33.9%	6.0%
1998	$2,326,045,682	N/A	4.5%

However, during this period, notable fluctuations in outpatient therapy expenditures were observed that may reflect the impact of specific payment policy provisions during the five-year period. For example, the less than ten percent rate of growth pattern of total Part B Trust Fund expenditures during 1998 and 1999 reflects the impact of the BBA of 1997 provisions, while the greater than ten percent rate of growth of Part B Trust Fund expenditures from 2000 through 2002 reflects the impact of the BBRA of 1999 and BIPA of 2000 provisions that rolled back some of the cost containment provisions of the BBA.

During this same period, outpatient therapy expenditures declined by 33.9 percent from CY 1998 to CY 1999, primarily reflecting the impact of the imposition of the fee schedule on all outpatient therapy providers. Another factor that influenced this expenditure reduction was the modified imposition of the per-beneficiary annual therapy caps on a per-provider basis. In other words, expenditures were not incurred because the financial limitations were met, or they were not incurred because of possible "rationing" of care in order to avoid surpassing the cap limits. In addition, as we suggested in a prior report, the combined effects of the imposition of new Part A PPS payment systems, along with the new outpatient therapy payment policies in 1999 resulted in a marked decline in the availability of therapists to treat beneficiaries[31]. For example, one study reported a sixty percent decline in the number of speech-language pathologists employed in nursing home settings between 1997 and 1999[32].

The subsequent rebound increase in total outpatient therapy expenditures of 35.7 percent in CY 2000, and the 22.9 percent average annual increase through CY 2001 and 2002, can be explained to a large degree by the impact of the BBRA of 1999 and BIPA of 2000 provisions as well as demographic and administrative factors. Although the per-beneficiary annual financial limitations were not fully enforced in CY 1999, the subsequent moratoria on the enforcement of the caps removed the barrier of limiting medically necessary services for beneficiaries that needed such care.

In addition, the moratoria reduced the incentive for beneficiaries or providers to "ration" care in order to preserve available benefits for later in the year, or to hold off on services until the start of the

[29] Due to the absence of CY 2001 therapy user data, the estimated increase in therapy expenditures in CY 2001 and 2002 represents one-half of the two-year increase observed from CY 2000 to 2002.
[30] Table II.C1. Operations of the SMI Trust Fund (Cash Basis) during Calendar Years 1970-2013 http://www.cms.hhs.gov/publications/trusteesreport/2004/tabiic1.asp.
[31] Olshin, J., et al., *Study and Report*…. September 2002. Section 5.2 p. 39.
[32] American Speech-Language and Hearing Association. *Effect of the BBA-Related Changes in Medicare Reimbursement on the Delivery of Speech—Language Pathology Services.* ASHA-2 WP99-1.

next calendar year when a new financial limit "bank" was available. With therapists being able to spend more treatment time with individual beneficiaries, there was a need for a recovery of the number of therapists available to meet the additional treatment needs. This therapist employment recovery was reported in recent professional association employment surveys[33].

It is important to note that this therapist employment rebound effect did not result in a net increase the relative number of beneficiaries receiving outpatient therapy services compared with 1998, as described in Section 2.3 above. However, the 6.7 percent gross increase in the number of beneficiaries treated in CY 2002 compared with CY 1998 did have an impact on the overall increase in outpatient therapy expenditures over the same period.

Administrative actions also contributed to the rate of increase in outpatient therapy expenditures observed from CY 2000 through CY 2002. In particular, while the annual Medicare fee schedule adjustments are indexed to changes in the MEI, the pricing of individual procedure codes may be increased at a higher or lower rate than the MEI depending upon the three components of fee schedule pricing, work value, practice expense value, and malpractice value. During this period of time, these values were adjusted upwards for most of the common procedures furnished under the outpatient therapy benefit. The net result is that the regulatory adjustments increased the price for common outpatient therapy procedures more than the MEI increased over the same period.

2.5 Demographics of Outpatient Therapy Users

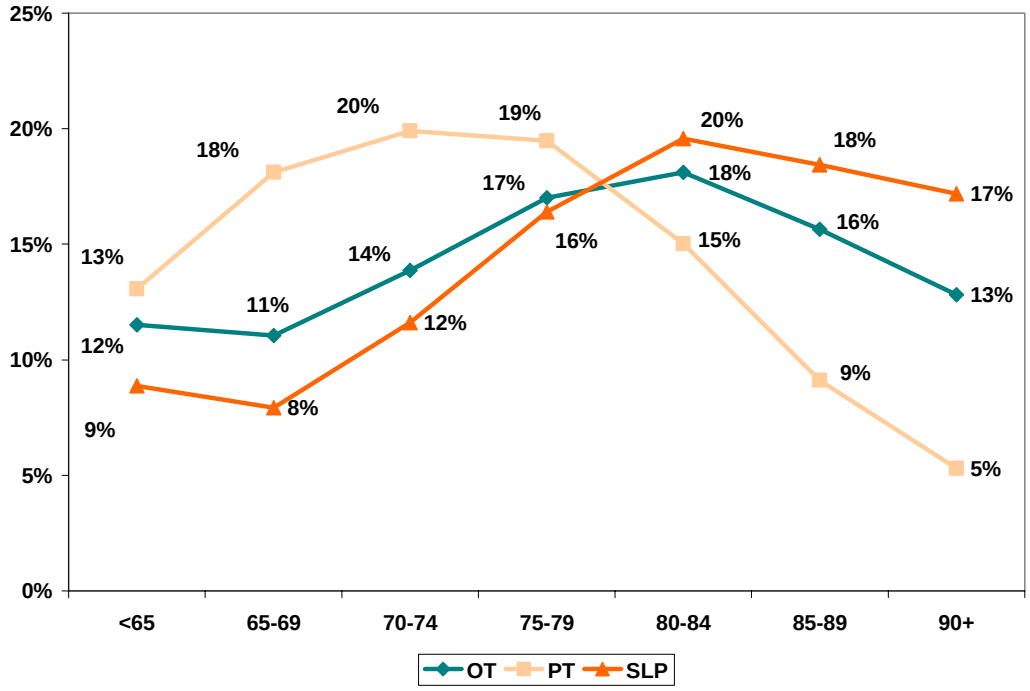
2.5.1 Beneficiary age

During CY 2002, most outpatient therapy users were in the age groups 70-74 (717 thousand) and 75-79 (714 thousand), each representing 19.1 percent of all therapy users. The age groups with the smallest size were for individuals 90 years old and over with 240 thousand (6.4%), and those ages 85-89 with 370 thousand (9.9%). This overall pattern of utilization by age is similar to studies of prior years[34] and is driven by the PT patterns since they dominate the database.

However, SLP and OT services were more likely to be furnished to slightly older age groups than PT services. Figure 2 demonstrates that, while the peak age group for PT patient volume was for 70-79 year old beneficiaries, the SLP peak was for individuals aged 80-89, and the OT peak was for individuals aged 75-84. In addition, therapy users aged 80 and above were more likely to receive combinations of therapy services than younger individuals.

[33] *Employment Surveys Show Improved Job Market for Physical Therapists and Physical Therapist Assistants*. Available at: http://www.apta.org/news/news_releases/news_archives/employ_surveys. Last accessed: September 15, 2004.
[34] Olshin, J., et al., *Study and Report…*. September 2002.

Figure 2. Age distribution of Part B therapy users in CY 2002 – by therapy type[35]



2.5.2 Beneficiary gender

Females accounted for two-thirds of outpatient therapy users during CY 2002 (2.48 million females to 1.16 million males). *This overall pattern of utilization by gender was generally consistent across therapy types and was similar to studies of prior years.*

2.5.3 Beneficiary state of residence

During CY 2002, three states represented nearly one-quarter of all outpatient therapy users and nine states represented over one-half. Florida had nearly 325 thousand individuals who received Part B therapy services in CY 2002, representing 8.7% of all users nationwide. California followed with 295 thousand (7.9%) and New York with 270 thousand (7.2%). These three states represent 23.8% of all individual Part B therapy users. These three states and the next seven states with the most therapy users accounted for 53.3% of all therapy users (Table 4).

A comparison of the total number of beneficiaries in the state to the number of therapy users in the state yields a different picture. For example, Florida has 2,927,629 enrollees, of whom 324,701 are California, which has 3,979,869 enrollees, has 295,450 therapy users, which is only 7.3% of the total (lower than the national average of 9.3). However, a note of caution is necessary when interpreting the significance of beneficiary utilization by state and beneficiary enrollment by state. The Part B enrollment data tables do not adjust for the state differences in Medicare Advantage managed care plan saturation. Section 2.3 provides insight to the impact of adjusting for managed care enrollment.

[35] Source: Ciolek, D., and Hwang, W.. *Utilization Analysis….* October 2004. p. 15.

Table 4. States with the greatest number of Part B therapy users in CY 2002[36]

Rank	State	Percent of All Part B Enrollees Residing in This State[37]	Individual Therapy Users	Percent Therapy Users of Total Part B Enrollees	Cumulative Percent of Therapy Users
	All States		**3,747,395**	**100.0%**	
1	Florida	7.3%	324,701	8.7%	8.7%
2	California	9.9%	295,450	7.9%	16.5%
3	New York	6.7%	270,252	7.2%	23.8%
4	Texas	5.9%	210,658	5.6%	29.4%
5	Pennsylvania	5.2%	189,190	5.0%	34.4%
6	Ohio	4.3%	174,925	4.7%	39.1%
7	Illinois	4.1%	159,345	4.3%	43.4%
8	Michigan	3.6%	154,938	4.1%	47.5%
9	New Jersey	3.0%	113,771	3.0%	50.5%
10	North Carolina	3.0%	104,445	2.8%	53.3%

When the individual type of therapy was considered, a slightly different pattern of therapy user volume by state was observed. *Data analysis demonstrated that some states are more likely than average to provide particular types of services.* For example, while Florida has 8.7 percent of all outpatient therapy users, it represents 9.3 percent of all OT users. Conversely, while California has 7.9 percent of all outpatient therapy users, it only represents 5.2 percent of OT users nationwide[38]. Therapy user distribution by state for PT and SLP services also varied, but in patterns different from OT and may reflect, in part, variations in provider availability.

2.5.4 Beneficiary diagnosis

Beneficiaries were classified into diagnosis groups by the principal claim diagnosis code used during their first outpatient therapy encounter during CY 2002. For example, if a beneficiary received PT on January 16, 2002 with a diagnosis of acute stroke (436), then that individual was classified as an acute stroke patient for the entire year (even if a different diagnosis was reported later in the year). All PT payments for that individual in CY 2002 would then describe their annual expenditures. However, the therapy groups were not mutually exclusive. Therefore, if that same individual received both PT and OT services, then he/she would be counted once in the PT group, and once in the OT group[39].

In general, the results demonstrate differences in the types of diagnoses that are most often treated under PT, OT, and SLP plans of care. The results also highlight diagnosis coding issues that will impact later patient classification activities, and may be relevant to other CMS payment policy considerations.

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[36] Source: Ciolek, D., and Hwang, W.. *Utilization Analysis.*…October 2004. p. 17.
[37] Source: Ciolek, D., and Hwang, W.. *Utilization Analysis.*…. October 2004. Appendix N has the total Part B enrollees (n = 40,108,889) divided by state. The percentage data in this column were calculated from those figures. Note: Part B enrollment tables do not adjust for Medicare Advantage enrollees.
[38] Ciolek, D., and Hwang, W.. *Utilization Analysis.*…. October 2004, Appendix C.
[39] See Ciolek, D., and Hwang, W.. *Utilization Analysis.*…. October 2004, Section 5.0 for full description of methodology and results of beneficiary diagnosis analysis.

For example, the data indicated that ten percent of all PT users in CY 2002 first presented with a principal claim diagnosis of V57.1 ("Other physical therapy") which is a generic code most often used by institutional providers, including outpatient hospital and SNF. There is not a requirement for providers to submit a diagnosis that more precisely describes the beneficiary's medical condition, or condition being treated under a therapy plan of care.

In addition, the data reveals that, the fifth and tenth most commonly reported SLP diagnosis groups were "Other physical therapy" and "Difficulty in walking" respectively. This demonstrates that patient classification using the principal diagnosis as currently provided on the claim is likely to result in a large number of inappropriate payments, particularly as they relate to SLP and OT services. Under current claims processing guidelines, institutional providers may submit PT, OT and SLP services on the same claim. There is no process to identify the principal diagnosis for each individual therapy. Because the PT revenue center (042x) is most commonly reported before the higher numbered OT (043x) and SLP (044x) revenue centers, there is a greater likelihood that OT and SLP users will be reported by the PT diagnosis using only claims data.

2.5.4.1 Most frequently observed physical therapy diagnoses

Among the other top ten most common PT diagnoses (Table 5), six were musculoskeletal related conditions ("Lumbago", "Pain in Shoulder," "Cervicalgia", "Pain in joint, lower leg", "Osteoarthritis, lower leg", and "Disorders of bursa and tendon in shoulder region"), one was a "Neurological disorder" ("Acute, but ill-defined cerebrovascular disease" [Stroke]), and the remaining two diagnoses were for general symptoms ("Abnormality of gait" and "Pain in limb"). The top 10 PT diagnoses by volume accounted for 33% of all PT users while the top 98 diagnoses represent 74% of PT users.

Table 5. Most frequently observed diagnoses among PT users[40]

Diagnosis Frequency Rank	Diagnosis (ICD-9) Code	Diagnosis Description	Number of PT Users	Row Percent	Cumulative Percent
		All diagnoses	**3,296,407**		
1	V57.1	Other physical therapy	338,509	10.27%	10.27%
2	724.2	Lumbago	219,618	6.66%	16.93%
3	781.2	Abnormality of gait	116,623	3.54%	20.47%
4	719.41	Pain in joint, shoulder region	87,489	2.65%	23.12%
5	723.1	Cervicalgia	80,870	2.45%	25.58%
6	719.46	Pain in joint, lower leg	77,819	2.36%	27.94%
7	436	Acute, but ill-defined cerebrovascular disease	47,710	1.45%	29.38%
8	715.96	Osteoarthritis, unspecified whether generalized or localized, lower leg	45,399	1.38%	30.76%
9	729.5	Pain in limb	43,637	1.32%	32.09%
10	726.10	Disorders of bursa and tendons in shoulder region, not elsewhere classified	43,569	1.32%	33.41%

2.5.4.2 Most frequently observed occupational therapy diagnoses

Among the top ten most common OT diagnoses (Table 6), "Acute, but ill-defined cerebrovascular disease" (Stroke) was the most common at 4.39 percent of OT users. However, the generic diagnosis

[40] Source: Ciolek, D., and Hwang, W.. *Utilization Analysis.*.. October 2004, p. 22.

codes “Other physical therapy” and “Occupational therapy encounter” ranked second and third, representing 8.31 percent of OT users. Among the remaining seven top OT diagnoses, five were for general symptoms (“Abnormality of gait”, “Other general symptoms”, “Debility”, “Muscular wasting and disuse atrophy”, and “Difficulty in walking”), one for swallowing disorders (“Dysphagia”), and one for a peripheral nerve injury condition (“Carpal Tunnel Syndrome”). The top 10 OT diagnoses by volume accounted for 28% of all OT users while the top 100 diagnoses represent 70% of OT users. The diversity of commonly used diagnoses for PT and OT are similar, although they differ in relative distribution. Only “Acute, but ill-defined cerebrovascular disease” and “Abnormality of gait” occur in the 10 most often reported diagnosis of both PT and OT.

Table 6. Most frequently observed diagnoses among OT users[41]

Diagnosis Frequency Rank	Diagnosis (ICD-9) Code	Diagnosis Description	Number of OT Users	Row Percent	Cumulative Percent
		All diagnoses	**745,241**		
1	436	Acute, but ill-defined, cerebrovascular disease	32,726	4.39%	4.39%
2	V57.1	Other physical therapy	31,739	4.26%	8.65%
3	V57.21	Occupational therapy encounter	30,178	4.05%	12.70%
4	781.2	Abnormality of gait	27,369	3.67%	16.37%
5	780.9	Other general symptoms	15,644	2.10%	18.47%
6	787.2	Dysphagia	15,537	2.08%	20.56%
7	799.3	Debility, unspecified	15,224	2.04%	22.60%
8	728.2	Muscular wasting and disuse atrophy, not elsewhere classified	13,228	1.77%	24.37%
9	719.70	Difficulty in walking, site unspecified	12,341	1.66%	26.03%
10	354.0	Carpal Tunnel Syndrome	12,189	1.64%	27.67%

2.5.4.3 Most frequently observed speech-language pathology diagnoses

Among the top ten most common SLP diagnoses (Table 7), swallowing disorders (“Dysphagia”) was the most common at twenty-eight percent. Three central neurological conditions were also among the top ten most common SLP diagnoses (“Acute, but ill-defined cerebrovascular disease”, “Alzheimer’s Disease”, and “Parkinson’s Disease”). There were two cardiopulmonary related conditions (“Congestive Heart Failure” and “Pneumonia”), in addition to two general symptom diagnoses (“Abnormality of gait” and “Difficulty in walking”) and two generic diagnoses (“Other physical therapy” and “Speech therapy”) among the most frequently reported SLP conditions. SLP diagnoses are less diverse than PT or OT. The top 10 SLP diagnoses by volume accounted for 49% of all SLP users while the top 100 diagnoses represent 82% of SLP users. As noted above, SLP shares half of the most common diagnosis codes with the top OT diagnoses, and 2 on the PT list.

[41] Source: Ciolek, D. and Hwang, W.. *Utilization Analysis.*..October 2004. p. 23

Table 7. Most frequently observed diagnoses among SLP users[42]

Diagnosis Frequency Rank	Diagnosis (ICD-9) Code	Diagnosis Description	Number of SLP Users	Row Percent	Cumulative Percent
		All diagnoses	**367,783**		
1	787.2	Dysphagia	101,201	27.52%	27.52%
2	436	Acute, but ill-defined, cerebrovascular disease	22,411	6.09%	33.61%
3	V57.3	Speech therapy	12,630	3.43%	37.04%
4	781.2	Abnormality of gait	9,546	2.60%	39.64%
5	V57.1	Other physical therapy	7,724	2.10%	41.74%
6	331.0	Alzheimer's Disease	7,545	2.05%	43.79%
7	332.0	Parkinson's Disease, paralysis agitans	7,047	1.92%	45.71%
8	428.0	Congestive Heart Failure, unspecified	4,469	1.22%	46.92%
9	486	Pneumonia, unspecified	4,392	1.19%	48.12%
10	719.70	Difficulty in walking, site unspecified	4,384	1.19%	49.31%

2.6 Estimated impact of two caps (PT/SLP combined and OT separate) versus three separate PT, OT and SLP caps

By excluding hospital outpatient therapy expenditures from our data analysis, we were able to simulate the impact of the application of the outpatient therapy financial limitations on CY 2002 claims data[43]. An overview of the results is presented in Table 8 below. This simulation was consistent with current CMS policy for tracking the financial limitations that are published in the Medicare Claims processing Manual[44]. Minor modifications were necessary to address procedure coding changes since CY 2002; however, we do not believe these modifications impacted the overall results significantly.

[42] Ibid.

[43] See our earlier report, Ciolek, D., and Hwang, W.. *Utilization Analysis….* October 2004 for detailed methodology and results.

[44] Pub. 100-4, Ch. 5. Section 10.2 *The Financial Limitation.* Available at: http://www.cms.hhs.gov/manuals/104_claims/clm104c05.pdf. Last Accessed, October 22, 2004.

Table 8. Estimated impact of financial limitations on overall CY 2002 expenditures

Therapy type limit	Beneficiaries surpassing cap threshold	Percent of beneficiaries surpassing cap threshold	Average paid above cap threshold	Total paid above cap thresholds	Percent dollar impact on total payments if caps were in effect[45]
PT	463,893	14.1%	$1,188	$550,984,272	21.7%
OT	129,509	17.4%	$1,237	$160,209,108	26.2%
SLP	41,765	11.4%	$1,195	$49,906,251	21.1%
PT/SLP	508,686	14.5%	$1,263	$642,383,941	23.1%

Total 3 Caps (PT, OT, SLP)	$761,099,632	22.4%
Total 2 Caps (PT/SLP and OT)	$802,593,050	23.7%
Impact of Separating PT/SLP into separate caps	$41,493,418	1.2%

During CY 2002, we estimate that Medicare paid $802,593,050 in outpatient therapy benefits above what would have been permitted if the two separate caps (PT/SLP and OT) were enforced. This represents 23.7 percent of all outpatient therapy expenditures for that year[46].

Over fourteen percent (14.5%) or 508,686 beneficiaries receiving PT and/or SLP services accounted for $642,383,941 of the total payments above the cap threshold. Over seventeen percent (17.4%) or 130 thousand beneficiaries receiving OT services also surpassed the cap threshold by $160,209,108.

If the PT/SLP cap limitation was divided into two separate caps, there would have been only a minor 1.2 percent total impact on expenditures, meaning that while an additional $41 million would have been paid before the separate PT or SLP caps were reached, the total dollar impact of $761,099,062 would still represent 22.4 percent of the total outpatient therapy expenditures in CY 2002.

By splitting the PT/SLP cap into separate PT and SLP financial limitations, there would have been a slight reduction (3.4%) in the number of beneficiaries impacted and a slight increase (1.2%) in outpatient therapy expenditures. However, during CY 2002, 14.1 percent of beneficiaries receiving PT, and 11.4 percent of beneficiaries receiving SLP services would still have surpassed the cap payment thresholds.

The average dollar paid amount above the cap threshold column in Table 8 represents Medicare payments issued above the cap threshold amounts for those beneficiaries that exceeded the financial limit thresholds. *This represents the average additional out-of-pocket expense that would have been incurred by beneficiaries if the financial limitations were in effect during CY 2002.*

2.7 Impact of Financial Limitations on Beneficiaries by Age

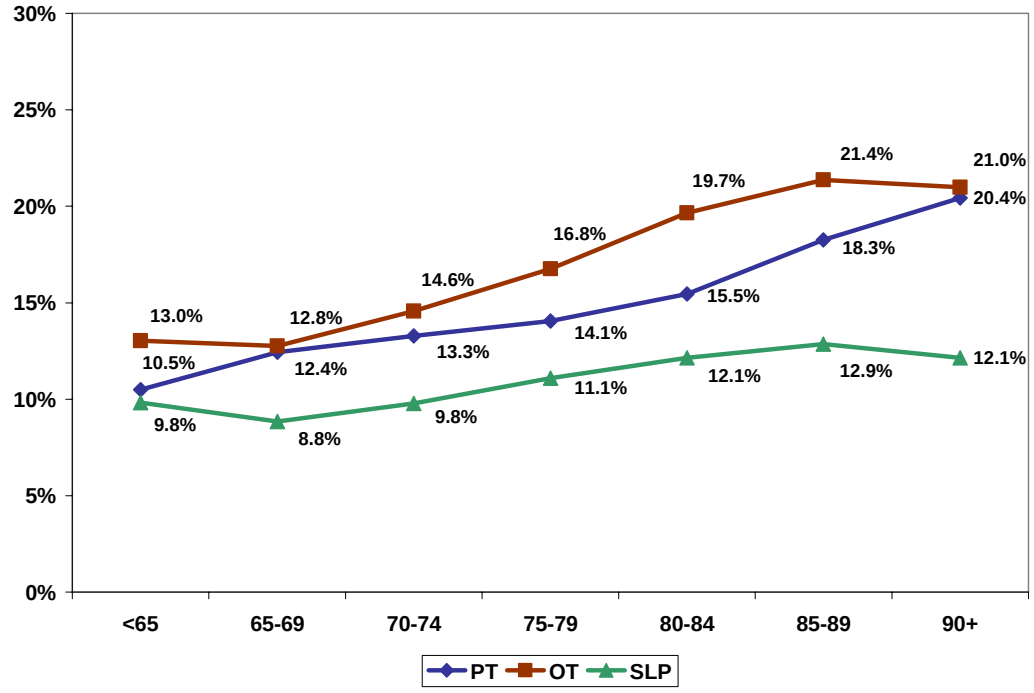
The data indicates that as beneficiary age increased, the percentage of beneficiaries that surpassed the payment limitation threshold in CY 2002 generally increased for all therapy types (Figure. 3).

[45] Percent dollar impact on total payments = "Total paid above cap thresholds" row amount / the total estimated Medicare expenditures for the type of therapy described in the row. Total expenditures PT = $2,544,116,563, Total OT = $611,906,952, Total SLP = $236,203,443, Total PT/SLP = $2,780,320,006, Total of all therapies = $3,392,226,958

[46] Total Medicare expenditures for outpatient therapy services in CY 2002 are estimated at $3,392,226,958.

While the overall percentage of beneficiaries that received PT surpassing the payment limitations was 14.1 percent, the rate was only 10.5 percent for those under age 65, and increased steadily to a 20.4 percent rate for beneficiaries aged 90 and above. The rate of beneficiaries surpassing the OT cap threshold was higher than PT and SLP overall, at 17.4 percent. It was also higher within each age group, the lowest rate being 12.8 percent for beneficiaries aged 65-69, and the highest rate being 21.4 percent for beneficiaries aged 85-89. The rate that beneficiaries using SLP services would have surpassed the financial limitations was the least of the three therapy types at 11.4 percent. Although not reflected in Figure 3, if there were a combined PT/SLP cap in CY 2002, we estimate an overall rate of surpassing the financial limitation of 14.5 percent, demonstrating a steady increase from a low of 10.7 percent for beneficiaries under age 65 to a high of 21.1 percent for beneficiaries aged 90 and above 47 years old.

Figure 3. Estimated percent of beneficiaries surpassing separate PT, OT, and SLP financial limitation thresholds during CY 2002 by beneficiary age[48]



2.8 Impact of Financial Limitations on Beneficiaries by Gender

When beneficiary gender is considered, a slightly higher percentage of females surpassed the financial limitation thresholds for all therapy types in CY 2002[49]. While the overall percentage of beneficiaries that received PT surpassing the payment limitations was 14.1 percent, the rate was 14.3 percent for females, and 13.6 percent for males. A similar pattern was apparent for OT as the rate for females surpassing the cap threshold was 18.0 percent, while the rate for males was only 16.1

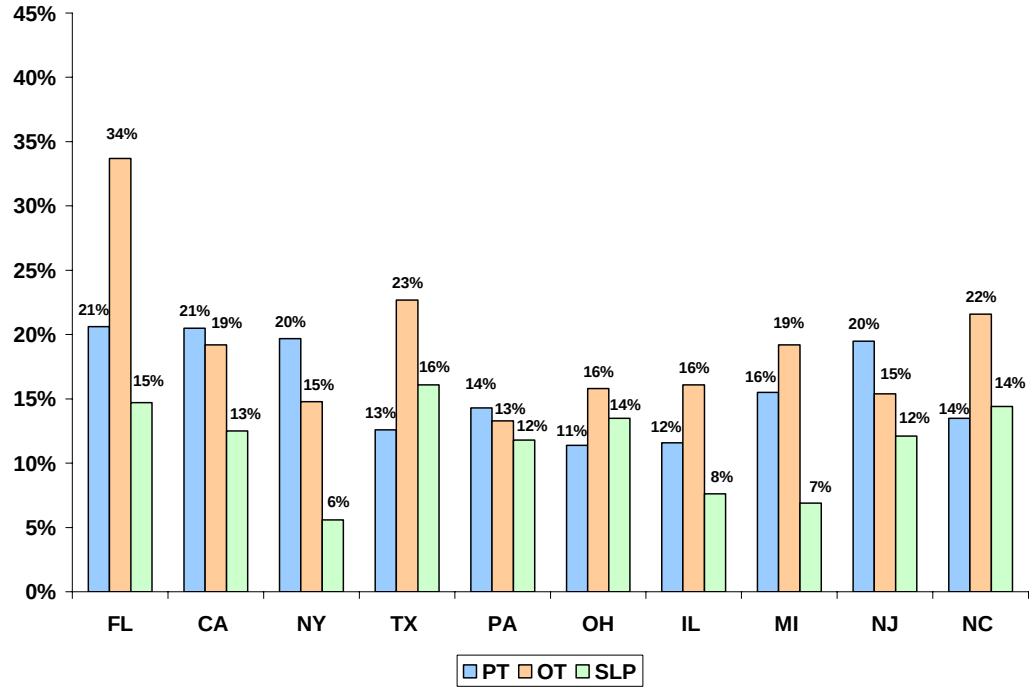
[47] Source: Ciolek, D., and Hwang, W.. *Utilization Analysis….* October 2004, Appendix K-Table 1
[48] Source: Ciolek, D., and Hwang, W.. *Utilization Analysis….* October 2004. p. 31.
[49] Ciolek, D., and Hwang, W.. *Utilization Analysis….* October 2004. p. 32.

percent, resulting in the overall OT rate of 17.4 percent. With SLP services, the overall rate of beneficiaries surpassing the financial limitation was 11.4 percent, with the female rate of 11.9 percent being higher than the male rate of 10.4 percent. If there were a combined PT/SLP cap in CY 2002, we estimate an overall rate of surpassing the financial limitation of 14.5 percent, with a female rate of 14.8 percent and a male rate of 14.0 percent.

2.9 Impact of Financial Limitations on Beneficiaries by State of Residence

When beneficiary state is considered, a remarkable variation is apparent between states in the percentage of beneficiaries that surpassed the payment limitation thresholds had they been enforced in CY 2002. Unlike the age and gender demographic variables described earlier, there was not a consistent pattern across therapy types. For example, in the ten states with the greatest number of therapy users (Figure 4), the rate of OT beneficiaries surpassing the financial limitation varied from a high of 34 percent in Florida to a low of 13 percent in Pennsylvania. Figure 4 also demonstrates differences between the therapy types, as OT rates of surpassing the cap thresholds were the highest in six of the top ten most populous therapy patient states (FL, TX, OH, IL, MI, and NC), while PT had the highest rate in four states (CA, NY, PA, and NJ).

Figure 4. Estimated percent of beneficiaries surpassing separate PT, OT, and SLP financial limitation thresholds during CY 2002 by beneficiary state of residence (top 10 by patient volume)[50]



[50] Ciolek, D., and Hwang, W.. *Utilization Analysis….* October 2004, p. 34.

For all states, the data revealed even more marked variations[51]. During CY 2002, while the average national rate for beneficiaries surpassing the PT financial limitation thresholds was 14.1 percent, the range varied from a low of 2.6 percent in North Dakota to a high of 20.6 percent in Florida[52]. The range for OT beneficiaries surpassing the cap threshold was even larger between states. While the national OT average was 17.4 percent, over one-third (33.7%) of beneficiaries in Florida that received OT surpassed the cap threshold, while only 4.3 percent did so in North Dakota[53]. Differences between state rates of beneficiaries surpassing the SLP financial limitation from the national average of 11.4 percent were also apparent, with a high of 25.0 percent in Louisiana and a low of 1.8 percent in Hawaii. While the average rate of beneficiaries surpassing the combined PT/SLP financial limitation was 14.5 percent nationally, the individual states had rates ranging from a high of 20.9 percent in Florida to a low of 2.9 percent in North Dakota.

The state variations in beneficiaries exceeding the cap threshold amounts may in part be influenced by regional variations in the Medicare fee schedule pricing. The current outpatient therapy financial limitation statute does not provide for indexing of the cap limits to the geographic fee schedule pricing methodology. Beneficiaries living in locations with higher priced procedures will receive relatively fewer services under a capped benefit than those living in lower priced regions. However, other variables such as hospital access (discussed in Section 2.11) may also play a role in the observed state-to-state variations in the percentage of beneficiaries exceeding the cap threshold amounts.

2.10 Impact of Financial Limitations on Beneficiaries by Diagnosis

As discussed earlier in Section 2.5.4, in order to describe per-beneficiary utilization patterns during CY 2002, we classified a beneficiary's diagnosis by the principal diagnosis on the first outpatient therapy claim for the particular therapy service during CY 2002. There were some limitations to classifying beneficiaries by diagnosis discussed that would need to be considered when interpreting the following discussion of the estimated impact of the financial limitations by claim diagnosis.

2.10.1 Estimated CY 2002 Financial Limitation Impact by PT Diagnosis

There is no beneficiary diagnosis pattern that clearly identifies particular conditions more likely to surpass the PT financial limitation amounts. For example, of the top 15 most commonly reported PT diagnoses presented in Table 9, "Acute, but ill-defined cerebrovascular disease" ("Stroke," ICD-9 - 436) has the highest rate of beneficiaries surpassing the financial limit threshold amount at 23.2 percent and the highest average payments above the cap threshold ($1555). If this were the strongest variable, it would be appealing to consider this easily identified and understood diagnosis and others in the top 15, for exemption from the financial limitation.

[51] See Ciolek, D., and Hwang, W.. *Utilization Analysis….* October 2004, Appendix H-Table 3, Appendix I-Table 3 and Appendix J-Table 3 for complete state results.
[52] Appendix H-Table 3.
[53] Appendix I-Table 3.

Table 9. Estimated financial limitation impact by claim diagnosis – physical therapy[54]

Claim diagnosis group		Beneficiaries receiving PT services	Beneficiaries surpassing PT cap threshold	Percent of beneficiaries surpassing PT cap threshold	Average paid above PT cap threshold	Total paid above PT cap threshold
ICD-9 Code	Diagnosis description					
Total	**All Reported Diagnoses**	**3,296,407**	**463,893**	**14.1%**	**$1,188**	**$550,984,272**
V57.1	Other physical therapy	338,509	4,162	1.2%	$987	$4,107,478
724.2	Lumbago	219,618	29,018	13.2%	$1,202	$34,877,315
781.2	Abnormality of gait	116,623	24,814	21.3%	$1,200	$29,770,348
719.41	Pain in joint, shoulder region	87,489	12,191	13.9%	$1,094	$13,337,564
723.1	Cervicalgia	80,870	9,085	11.2%	$1,162	$10,556,588
719.46	Pain in joint, lower leg	77,819	12,263	15.8%	$1,169	$14,337,286
436	Acute, but ill-defined cerebrovascular disease	47,710	11,060	23.2%	$1,555	$17,199,295
715.96	Osteoarthritis, unspecified whether generalized or localized, lower leg	45,399	7,260	16.0%	$1,123	$8,156,174
729.5	Pain in limb	43,637	5,271	12.1%	$1,377	$7,256,111
726.10	Disorders of bursa and tendons in shoulder region, not elsewhere classified	43,569	6,476	14.9%	$1,037	$6,716,130
840.4	Sprains and strains, rotator cuff (capsule)	42,061	8,331	19.8%	$986	$8,216,949
724.02	Spinal stenosis, other than cervical, lumbar region	41,355	6,199	15.0%	$988	$6,127,402
719.45	Pain in joint, pelvic region and thigh	40,848	4,776	11.7%	$1,065	$5,087,013
724.5	Backache, unspecified	40,774	3,935	9.7%	$1,247	$4,908,676
715.16	Osteoarthritis, localized, primary, lower leg	37,809	7,794	20.6%	$1,002	$7,811,459

However, in reviewing the list of the top 98 most frequently reported PT diagnoses presented in our prior *Utilization Analysis* report[55], there are fifteen other diagnoses reported that have higher rates of beneficiaries surpassing the financial limitations than "Acute Stroke." Some of these do not describe specific clinical conditions as well as others, but clearly generate higher rates of beneficiaries surpassing the payment cap thresholds. They include:

- 438.0 – Late effects of stroke at 31.3%;
- 715.09 – Osteoarthritis, generalized, multiple sites at 29.3%;
- 719.79 – Difficulty in walking, multiple sites at 28.2%;
- 780.9 – Other general symptoms at 28.1%;
- 401.9 – Essential hypertension at 27.7%;
- 715.00 – Osteoarthritis, generalized, site unspecified at 27.1%;

[54] Ciolek, D., and Hwang, W.. *Utilization Analysis.*.. October 2004, p. 36.
[55] Ciolek, D., and Hwang, W.. *Utilization Analysis.*.. October 2004, Appendix H-Table 4.

- 727.61 – Non-traumatic rotator cuff rupture at 27.0%;
- 728.2 – Muscular wasting and disuse atrophy at 26.4%;
- 719.70 – Difficulty in walking, site unspecified at 26.0%;
- 820.8 – Closed fracture of neck of femur at 25.8%;
- 719.75 – Difficulty in walking, pelvic region and thigh at 25.2%;
- 332.0 – Parkinson's Disease at 24.5%;
- 250.00 – Type II Diabetes at 24.1%;
- 707.0 – Decubitus ulcers at 24.1%; and,
- 428.0 – Congestive Heart Failure at 23.3% surpassing the PT cap threshold.

The great variety of conditions described by these diagnoses (all that have relatively high rates of beneficiaries surpassing the PT limitation threshold) highlights the difficulty in using claim diagnosis alone to exclude certain individuals from the financial limitation.

2.10.2 Estimated CY 2002 financial limitation impact by OT diagnosis

There is no beneficiary diagnosis pattern that clearly identifies particular conditions more likely to surpass the OT financial limitation amounts. For example, of the top 15 most commonly reported OT diagnoses presented in Table 10, "Muscular wasting and disuse atrophy" (ICD-9 - 728.2) has the highest rate of beneficiaries surpassing the financial limit threshold amount at 32.1 percent, although "Acute, but ill-defined cerebrovascular disease" ("Stroke," ICD-9 - 436) had the highest average payments above the cap threshold ($1453). Among the 15 most frequently reported OT diagnoses, several nonspecific diagnoses demonstrate rates of beneficiaries surpassing the financial limit threshold by greater than 25 percent.

Table 10. Estimated financial limitation impact by claim diagnosis – occupational therapy[56]

Claim diagnosis group		Beneficiaries receiving OT services	Beneficiaries surpassing OT cap threshold	Percent of beneficiaries surpassing OT cap threshold	Average paid above OT cap threshold	Total paid above OT cap threshold
ICD-9 Code	Diagnosis description					
Total	**All Reported Diagnoses**	**745,240**	**129,509**	**17.4%**	**$1,237**	**$160,209,108**
436	Acute, but ill-defined, cerebrovascular disease	32,726	6,768	20.7%	$1,453	$9,834,716
V57.1	Other physical therapy	31,739	759	2.4%	$1,074	$815,204
V57.21	Occupational therapy encounter	30,178	185	0.6%	$958	$177,213
781.2	Abnormality of gait	27,369	7,159	26.2%	$1,220	$8,731,188
780.9	Other general symptoms	15,664	3,989	25.5%	$1,207	$4,815,960
787.2	Dysphagia	15,537	3,056	19.7%	$1,095	$3,344,914
799.3	Debility, unspecified	15,224	3,391	22.3%	$1,164	$3,947,700
728.2	Muscular wasting and disuse atrophy, not elsewhere classified	13,228	4,240	32.1%	$1,290	$5,468,922
719.70	Difficulty in walking, site unspecified	12,341	3,528	28.6%	$1,149	$4,052,472
354.0	Carpal Tunnel Syndrome	12,189	518	4.2%	$779	$403,273
332.0	Parkinson's Disease paralysis agitans	10,865	2,679	24.7%	$1,296	$3,472,600
428.0	Congestive Heart Failure, unspecified	9,939	2,427	24.4%	$1,245	$3,021,833
728.9	Unspecified disorder of muscle, ligament, and fascia	9,857	2,822	28.6%	$1,236	$3,488,331
331.0	Alzheimer's Disease	9,542	1,423	14.9%	$881	$1,253,421
715.90	Osteoarthritis, unspecified whether generalized or localized, site unspecified	9,522	2,160	22.7%	$1,419	$3,063,960

However, in reviewing the list of the top 100 most frequently reported OT diagnoses that is presented in our prior *Utilization Analysis* report[57], there are five other diagnoses reported that have higher rates of beneficiary diagnoses surpassing the financial limitations than "Muscular wasting" or "Acute Stroke." Some of these do not describe specific clinical conditions as well as others, but clearly generate higher rates of beneficiaries surpassing the payment cap thresholds. They include:

- 723.4 – Brachia neuritis or radiculitis at 46.2%;
- 847.2 – Lumbar sprains and strains at 45.0%;
- 724.4 – Thoracic or lumbosacral neuritis or radiculitis, unspecified at 43.4%;
- 715.09 – Osteoarthritis, generalized, multiple sites at 34.4%; and,
- 719.79 – Difficulty in walking, multiple sites at 30.5% surpassing cap threshold.

[56] Ciolek, D., and Hwang, W.. *Utilization Analysis.*.. October 2004, p. 37.
[57] Ciolek, D., and Hwang, W.. *Utilization Analysis.*.. October 2004, Appendix I-Table 4.

The great variety of conditions described by these diagnoses (all that have relatively high rates of beneficiaries surpassing the OT limitation threshold) highlights the difficulty in using claim diagnosis alone to exclude certain individuals from the financial limitation. The presence of atypical diagnoses (e.g. the second most frequently reported OT principal claim diagnosis of V57.1 "Other physical therapy") also highlights significant barriers in identifying the true OT diagnosis using claim diagnosis[58].

2.10.3 Estimated CY 2002 financial limitation impact by SLP diagnosis

Similar to the PT and OT results, there is no pattern that clearly identifies particular conditions more likely to surpass the SLP financial limitation amounts. For example, of the top 15 most commonly reported SLP diagnoses presented in Table 11, "Late effects of a cerebrovascular disease" ("Stroke," ICD-9 - 438.0) has the highest rate of beneficiaries surpassing the financial limit threshold amount at 20.9 percent, although "Other speech disturbance" (ICD-9 - 784.5) had the highest average payments above the cap threshold ($1435). Unlike PT and OT users, one single diagnosis, "Dysphagia" (ICD-9 - 787.2), is the predominant diagnosis of SLP beneficiary users[59]

Table 11. Estimated financial limitation impact by claim diagnosis – speech-language pathology[60]

Claim diagnosis group		Beneficiaries receiving SLP services	Beneficiaries surpassing SLP cap threshold	Percent of beneficiaries surpassing SLP cap threshold	Average paid above SLP cap threshold	Total paid above SLP cap threshold
ICD-9 Code	Diagnosis description					
Total	**All Reported Diagnoses**	**367,783**	**41,765**	**11.4%**	**$1,195**	**$49,906,251**
787.2	Dysphagia	101,201	8,570	8.5%	$1,106	$9,478,334
436	Acute, but ill-defined, cerebrovascular disease	22,411	3,723	16.6%	$1,533	$5,707,955
V57.3	Speech therapy	12,630	212	1.7%	$1,266	$268,492
781.2	Abnormality of gait	9,546	1,551	16.2%	$1,109	$1,719,904
V57.1	Other physical therapy	7,724	140	1.8%	$1,142	$159,886
331.0	Alzheimer's disease	7,545	818	10.8%	$829	$677,975
332.0	Parkinson's disease, paralysis agitans	7,047	1,161	16.5%	$1,212	$1,407,643
428.0	Congestive heart failure, unspecified	4,469	654	14.6%	$1,068	$698,394
486	Pneumonia, unspecified	4,392	589	13.4%	$1,079	$635,655
719.70	Difficulty in walking, site unspecified	4,384	756	17.2%	$1,118	$845,079
799.3	Debility, unspecified	4,251	716	16.8%	$1,101	$788,295
780.9	Other general symptoms	4,231	836	19.8%	$1,216	$1,016,584

[58] The great majority of outpatient OT services are furnished by hospital and SNF providers that bill using the UB-92 form, or electronic equivalent. These claim forms do not provide fields that permit identification of a therapy-specific diagnosis. Frequently, if a beneficiary is receiving multiple therapies simultaneously, the PT diagnosis is reported first on the claim.

[59] 101,201 beneficiaries receiving SLP with a diagnosis of dysphagia represents 27.5% of all SLP users and 8,570 SLP users over the financial limitation with dysphagia represents 20.5% of all SLP beneficiaries surpassing the financial limit threshold.

[60] Ciolek, D., and Hwang, W.. *Utilization Analysis.*.. October 2004, p. 39.

Claim diagnosis group		Beneficiaries receiving SLP services	Beneficiaries surpassing SLP cap threshold	Percent of beneficiaries surpassing SLP cap threshold	Average paid above SLP cap threshold	Total paid above SLP cap threshold
ICD-9 Code	Diagnosis description					
784.5	Other speech disturbance	4,039	369	9.1%	$1,435	$529,688
290.0	Senile dementia, uncomplicated	3,964	468	11.8%	$847	$396,223
438.0	Late effects of cerebrovascular disease, cognitive deficits	3,417	713	20.9%	$1,306	$931,035

Among the 15 most frequently reported SLP diagnoses in table 11 and among the top 100 reported SLP diagnoses in presented in our prior *Utilization Analysis* report[61], several nonspecific and atypical diagnoses appear, some with higher than average rates for surpassing the SLP cap threshold. They include: 781.2 ("Abnormality of gait") with a 16.2% rate of surpassing the cap threshold, V57.1 ("Other physical therapy"), and 719.70 ("Difficulty in walking, site unspecified") with a 17.2 % rate of surpassing the cap threshold. The great variety of conditions described by these diagnoses highlights the difficulty in using claim diagnosis alone to exclude certain individuals from the financial limitation. The presence of atypical diagnoses also highlights significant barriers in identifying the true SLP diagnosis using claim diagnosis[62].

2.11 Impact of the Hospital Outpatient Exception on a Beneficiary's Likelihood to Surpass the Financial Limitations

Data analysis indicates that it is questionable whether the hospital outpatient services exception from the financial limitations is an equitable remedy to ensure beneficiary access to outpatient therapy services should the threshold be reached in another provider setting. The data presented in our *Utilization Analysis* report indicates that when the payment caps were applied against CY 2002 outpatient therapy utilization, those beneficiaries that either could not[63] or chose not to receive therapy services from a hospital outpatient provider were much more likely to surpass the financial limitations than those beneficiaries that did receive services from outpatient hospitals[64].

Because hospital outpatient expenditures are not debited against the therapy caps, very few of those beneficiaries that accessed such services during CY 2002 (generally less than 3%) generated expenditures exceeding the cap threshold amounts (Table 12). However, twenty percent or more of those individuals that either could not, or chose not to, go to hospital outpatient provider generated expenditures exceeding the thresholds for all variations of the caps analyzed.

While there was a moratorium on therapy caps in 2002, there was less motivation for beneficiaries to utilize hospital services. However, in 1999 when there were caps, only about 11 percent of

[61] Ciolek, D., and Hwang, W.. *Utilization Analysis.*.. October 2004, Appendix J-Table 4

[62] The great majority of outpatient SLP services are furnished by hospital and SNF providers that bill using the UB-92 form, or electronic equivalent. These claim forms do not provide fields that permit identification of a therapy-specific diagnosis. Frequently, if a beneficiary is receiving multiple therapies simultaneously, the PT diagnosis is reported first on the claim.

[63] Current Part A SNF PPS consolidated billing policy prohibits beneficiaries residing in the certified portion of a SNF to use the hospital outpatient therapy exemption to the caps, even if they are not under a Part A plan of care.

[64] Ciolek, D., and Hwang, W.. *Utilization Analysis.*.. October 2004, Appendix L, Appendix M, and Appendix N.

beneficiaries used more than one setting for therapy services, including hospital[65]. This suggests that provider preference or availability may supersede the motivation or ability to change providers to obtain additional coverage.

Table 12. Estimated impact of the hospital outpatient exception[66]

	Beneficiaries receiving therapy services	Beneficiaries surpassing cap thresholds	Percent of patients surpassing cap thresholds
PT Total	**3,296,407**	**463,893**	**14.1%**
Hospital not accessed[67]	2,087,979	435,280	20.8%
Hospital accessed[68]	1,208,428	28,613	2.4%
% Not using hospital[69]	63.3%	93.8%	
OT Total	**745,240**	**129,509**	**17.4%**
Hospital not accessed	499,837	126,488	25.3%
Hospital accessed	245,403	3,021	1.2%
% Not using hospital	67.1%	97.7%	
SLP Total	**367,783**	**41,765**	**11.4%**
Hospital not accessed	220,152	37,116	16.9%
Hospital accessed	147,631	4,649	3.1%
% Not using hospital	59.9%	88.9%	
PT/SLP Total	**3,503,136**	**508,686**	**14.5%**
Hospital not accessed	2,187,838	469,850	21.5%
Hospital accessed	1,315,298	38,836	3.0%
% Not using hospital	62.5%	92.4%	

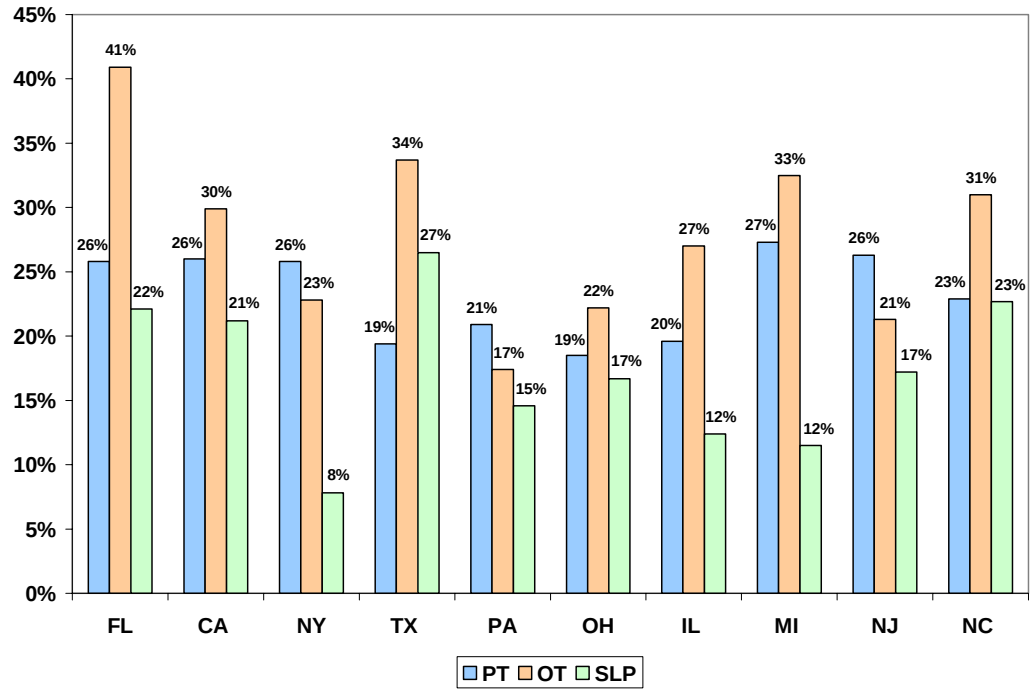
The observed impact was most pronounced when comparing state-by-state results. In states that had the highest percentage of therapy users receiving at least some outpatient hospital services, they consistently had the lowest rates of beneficiaries surpassing the therapy cap thresholds. Conversely, states with the highest percentage of therapy users that either could not or chose not to receive any outpatient hospital services consistently had the highest rates of beneficiaries surpassing the cap threshold limits. For example, in North Dakota, 61 percent of outpatient PT users went to a hospital outpatient therapy provider in CY 2002 and only 5.6 percent of all PT users in that state surpassed the cap threshold. On the other hand, in Maryland, only 15.9 percent of all PT users went to a

[65] Maxwell, S., et al., *Part B Therapy Services….* September 2001, p. 8.
[66] Ciolek, D., and Hwang, W.. *Utilization Analysis….* October 2004, p. 42.
[67] The "Hospital not accessed" row represents the beneficiaries that received outpatient therapy services during CY 2002 but could not, or chose not to receive any of these services from a hospital outpatient provider. Since none of the therapy furnished to these individuals was from a hospital outpatient provider, all incurred expenses were debited against the applicable cap estimate.
[68] The "Hospital accessed" row represents beneficiaries that received at least one outpatient therapy treatment from an outpatient hospital provider during CY 2002. The only incurred expenses debited against the applicable cap estimate were for services furnished by an outpatient therapy provider that was not identified as a hospital.
[69] The "% Not using hospital" row represents the distribution of beneficiaries that either could not, or chose not to access outpatient therapy services from an outpatient hospital provider during CY 2002. In addition, this row identifies the distribution of beneficiaries surpassing the cap thresholds that either could not, or chose not to access outpatient therapy services from an outpatient hospital provider during CY 2002.

hospital outpatient therapy provider in CY 2002 and consequently, 19.7 percent of the PT users in this state surpassed the cap threshold. Similar patterns by state were observed in the data for OT and SLP services as well during CY 2002.

Figure 5 demonstrates the disproportionate impact of the hospital exception for the three therapy types in the ten states with the greatest number of outpatient therapy users. Although local variations in fee schedule pricing and clinical practice patterns may play a role, *the data suggests that geographic variations in the availability of outpatient hospital services may impact a beneficiary's ability to use the hospital outpatient exemption to receive necessary services.*

Figure 5. Estimated beneficiary rate of surpassing financial limitations when hospital outpatient services not accessed – state demographics[70]



2.12 Episode-based classification modeling

Our feasibility analysis report, *Development of a Model Episode-Based Payment System for Outpatient Therapy Services*, demonstrated that the outpatient therapy data contained in the recent Version I update to the Medicare NCH data file has substantially more useful information than previously available[71]. By using demographic variables of beneficiary age, gender, state of residence, provider setting, and clinical classification group (based upon claim diagnosis), we developed models for PT, OT and SLP outpatient therapy episodes with predictive power comparable to other Diagnostic Cost Group (DCG) models[72] used with Medicare patients. This new

[70] Ciolek, D., and Hwang, W.. *Utilization Analysis.*.. October 2004, p. 44.
[71] Ciolek, D., and Hwang, W.. *Development of a Model.*.. October 2004.
[72] Ash, A., Ellis, R., Pope, G., et al., Using Diagnosis to Describe Populations and Predict Costs. *Health Care Financing Review*. 2000; 21:7-28.

information could support ongoing CMS efforts at reducing unnecessary outpatient therapy expenditures, while supporting the development of clinical practice models based upon beneficiary characteristics. *These clinical models could provide the foundation for an episode-based payment system, whether it be based upon utilization limits within the existing fee schedule methodology or if an entirely different method of payment is developed.*

2.13 Unexpected Findings in Models of Outpatient Therapy Expenditure by Episode

The results of our modeling analysis revealed that the interaction effects of therapy provider setting, beneficiary state of residence, and beneficiary condition (as reported by diagnosis) have the greatest predictive value for per-episode outpatient therapy expenditures. In particular, these variables, when combined, appear to reverse previously reported expenditure patterns associated with beneficiary age. Outpatient therapy utilization studies using univariate and bivariate analysis, including ours, have consistently described a correlation of increased expenditures with increasing beneficiary age. *However, our multivariate regression analysis of CY 2002 outpatient therapy claims, which controlled for variables of gender, setting, condition and state of residence, demonstrates that average episodic expenditures actually decline with age.*

This effect does not negate the importance of age in payment policy considerations; rather it suggests that other variables, such as beneficiary functional status or functional recovery expectations need to be considered to determine their influence on episodic service delivery to beneficiaries. For example, is there a difference in the functional outcomes or expected recovery of a ninety-year-old beneficiary with a stroke versus someone who is only seventy?

2.14 Clinical Practice Patterns

As demonstrated in Table 13, the CY 2002 data indicates that when beneficiaries receive outpatient therapy services during a given year, they usually only require one episode of treatment[73]. The average number of episodes per year ranged from a low of 1.10 episodes for SLP to a high of 1.15 episodes for PT.

The average episode payment varied between all three therapy types with OT demonstrating the highest average episode payment at $743 (SD = $990), followed by PT at $664 (SD = $903) and SLP at $586 (SD = $889). This pattern suggests that although there are significantly fewer OT episodes than PT episodes (0.8 million to 3.8 million), when a beneficiary does receive OT, they receive relatively more total services than PT or SLP per episode.

[73] Because there is no formal policy defining an outpatient therapy episode of care, we operationally defined an episode as the dates from the beneficiary's first encounter until the last encounter for the specific type of therapy. An episode was deemed closed if 60 days passed prior to the next therapy claim date of service. See Ciolek, D., and Hwang, W.. *Development of a Model….* October 2004. Section 2.4.4 for the full operational definition of an episode of care used for this analysis.

Table 13. Outpatient therapy service episode patterns[74]

	Total Number of episodes	Average Number of episodes per year	Episode treatment days	Standard deviation treatment days	Average episode paid	Standard deviation episode paid	Payment per treatment day
All PT Episodes	3,776,459	1.15	10.6	11.7	$664	$903	$63
All OT Episodes	823,619	1.11	10.4	11.8	$743	$990	$71
All SLP Episodes	403,770	1.10	6.9	9.8	$586	$889	$85

The average number of treatment days per episode was similar for PT (10.6 days SD = 11.7) and OT (10.6 days SD = 11.8). A different pattern was observed for SLP services, which demonstrated an average of only 6.9 treatment days per episode (SD = 9.8). This suggests that on average, SLP episodes have required only about two-thirds the number of treatment dates as PT and OT episodes. However, all three therapy types demonstrate standard deviations in average treatment days per episode that are greater than the average rate indicating a right hand skewed distribution. This means that the majority of beneficiary episodes have fewer treatment days than average while a small number of episodes have a very high number of treatment days.

The implications of the observed skewing of outpatient therapy episodic expenditures and average number of treatment days should not be underestimated. Payment policy decisions should consider the implications of the wide standard deviations and the right handed skewing of the episodic distributions, in addition to the average payment and number of treatment days per episode values reported in table 13, and in our *Development of a Model Episode-Based Payment System for Outpatient Therapy Services* report[75]. In particular, consideration should be given to address the potential impact of bi-modal episode payment distribution patterns. While the current analysis has indicated that average episodic payments can be skewed to the right by a relatively small number of high expenditure beneficiaries, there is also the possibility that the median payment amount was skewed to the left by a large number of short duration episodes (e.g. 1-2 treatment days). For example, many SLP episodes might be represented by one or two treatment days for a bedside swallowing evaluation and establishment of a plan of care for a modified diet. However, many other SLP episodes might be represented by medically necessary extensive retraining of swallowing techniques, which may take numerous treatment days. Therefore, the SLP episode payment and treatment day averages may actually represent two distinct treatment groups requiring different payment policy consideration.

A different pattern is evident with average payment per treatment day as SLP has the highest amount ($85), followed by OT at $71 and PT at $63. A higher expenditure per treatment date does not necessarily reflect a higher intensity of services furnished per treatment day, because the three therapy service types billed different types of procedure codes. For example, in CY 2002, forty-five percent of all SLP procedures billed were for the non-timed code 92526 (Treatment of swallowing disorders)[76]. This procedure code was priced at an allowed amount in CY 2002 in Iowa[77] at $68.68

[74] Ciolek, D., and Hwang, W.. *Development of a Model.*.. October 2004. Section 3.1.
[75] Ciolek, D., and Hwang, W.. *Development of a Model.*.. October 2004. Section 3.1.
[76] Ciolek, D., and Hwang, W.. *Feasibility and Impact Analysis*, September 2004. Appendix C: CY 2002 Outpatient Therapy Procedure Code (HCPCS) Utilization: Rank by Unit Frequency.

per unit. In contrast, PT and OT services are more frequently represented by lower priced 15-minute time based codes. For example, code 97110 (Therapeutic exercise) was the most commonly reported procedure for PT (40%) and OT (32%) services in CY 2002. In Iowa, this 15-minute time based code was priced at $24.20. But the code can be billed multiple times in a day by PT or OT. Three units of time-based PT or OT procedures per treatment present a per treatment day charge similar to that observed for an SLP (primarily non-timed or once a treatment) procedures.

SLP payment per treatment is not comparable to PT and OT treatment since procedure pricing is established based on the intensity of the services furnished, the technical and professional skills necessary, time, and other variables. Also, SLP episodes typically are of shorter duration and lower cost than PT or OT service episodes.

In general, the average number of episodes per year per beneficiary was low for all three therapy types, and the utilization patterns for age, gender and state of residence were similar to the annual utilization patterns described earlier[78]. This suggests that general demographic variable analysis alone is not sensitive enough to identify beneficiaries more likely to have multiple episodes during a calendar year. Other variables, including setting and clinical classification group described in the following sections, might be better able to help distinguish beneficiaries likely to generate multiple episodes during a calendar year.

2.15 Provider Setting Impact on Episodic Practice Patterns

Setting appeared to play a major role in influencing the episodic payments for outpatient therapy service and very different patterns were apparent depending upon the type of therapy. Of the nearly 3.8 million PT episodes, seventy-one percent were represented by three settings (hospital = 34%, PTPP = 20% and physician = 17%. If SNF and ORF are included (14% each), these five settings accounted for nearly 99% of all PT service episodes (Table 14). OT on the other hand had eighty percent of over 800 thousand episodes occurred in only two settings (SNF = 49% and hospital = 31%). If the ten percent of OT episodes representing ORF settings were included, over 90% of OT service episodes were represented by only three settings (Table 15). More dramatic was the SLP episode pattern. Two settings accounted for ninety-four percent of the 403,770 SLP episodes (SNF = 58% and hospital = 36%). If an additional four percent of SLP episodes representing ORF settings were considered, three settings represented 98% of all SLP service episodes (Table 16).

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[77] Iowa pricing was selected for this example to remain consistent with our regression analysis that used Iowa as a state reference point. CY 2002 pricing information obtained from the online Medicare Physician Fee Schedule Look Up at: http://www.cms.hhs.gov/physicians/mpfsapp/step0.asp. Last accessed: October 22, 2004.

[78] See Ciolek, D., and Hwang, W.. *Feasibility and Impact Analysis….* September 2004. Sections 3.1.1-3.1.3 for complete episodic details by age, gender and state of residence.

Table 14. Physical therapy outpatient episode patterns by setting[79]

PT Episodes Setting	Number of PT Episodes	Average Number Treatment Days	Standard Deviation Treatment Days	Average Episode Paid	Standard Deviation Episode Paid	Payment per Treatment Day	Percent of Total (N) Episodes
All PT Episodes	**3,776,459**	**10.6**	**11.7**	**$664**	**$903**	**$63**	**100%**
Hospital	1,266,249	9.0	9.4	$506	$627	$56	34%
SNF	537,690	14.1	14.7	$899	$1,057	$64	14%
CORF	76,108	12.7	11.4	$1,100	$1,180	$86	2%
ORF	511,583	11.6	11.0	$803	$941	$69	14%
HHA	5,391	10.2	10.6	$659	$745	$64	0%
PTPP	738,521	12.0	12.1	$794	$947	$66	20%
Physician	636,772	7.9	11.9	$466	$995	$59	17%
Non-Physician	4,145	7.7	12.3	$415	$976	$54	0%

Table 15. Occupational therapy outpatient episode patterns by setting[80]

OT Episodes Setting	Number of OT Episodes	Average Number Treatment Days	Standard Deviation Treatment Days	Average Episode Paid	Standard Deviation Episode Paid	Payment per Treatment Day	Percent of Total (N) Episodes
All OT Episodes	**823,619**	**10.4**	**11.8**	**$743**	**$990**	**$71**	**100%**
Hospital	255,126	7.3	9.6	$483	$744	$67	31%
SNF	405,052	12.2	12.6	$838	$987	$69	49%
CORF	29,088	12.7	10.8	$1,371	$1,333	$108	4%
ORF	82,150	11.5	12.6	$904	$1,191	$79	10%
HHA	1,713	6.8	8.5	$501	$682	$73	0%
OTPP	41,370	10.2	12.4	$775	$1,237	$76	5%
Physician	9,070	4.4	6.7	$254	$451	$58	1%
Non-Physician	50	2.4	3.6	$120	$160	$49	0%

Table 16. Speech-language pathology outpatient episode patterns by setting[81]

SLP Episodes Setting	Number of SLP Episodes	Average Number Treatment Days	Standard Deviation Treatment Days	Average Episode Paid	Standard Deviation Episode Paid	Payment per Treatment Day	Percent of Total (N) Episodes
All SLP Episodes	**403,770**	**6.9**	**9.8**	**$586**	**$889**	**$85**	**100%**
Hospital	146,174	4.8	8.7	$389	$738	$81	36%
SNF	233,799	8.0	9.9	$689	$922	$86	58%
CORF	3,608	10.4	12.0	$985	$1,246	$95	1%
ORF	17,798	9.3	12.3	$789	$1,161	$85	4%
HHA	829	9.1	12.4	$731	$982	$81	0%
Physician	1,529	3.2	7.1	$230	$447	$72	0%
Non-Physician	33	1.3	0.6	$84	$35	$65	0%

[79] Ciolek, D., and Hwang, W.. *Development of a Model…* October 2004. p.32.
[80] Ciolek, D., and Hwang, W.. *Development of a Model…* October 2004. p.32.
[81] Ciolek, D., and Hwang, W.. *Development of a Model…* October 2004. p.32.

There were also variations in the average number of treatment days per episode, average episode payment, and average payment per treatment day depending upon the setting and therapy type. However, the CORF setting stands out among all three therapy types. With regards to average payment per PT episode, CORF was $1,100, followed by SNF at $899 and ORF at $803. For OT services, CORF also had the highest average episode payment at $1,371, followed by ORF at $904 and SNF at $838. CORF also had the highest average episode payment for SLP services at $985, followed by ORF at $789 and HHA at $731.

The average payment per treatment day for CORF PT was $86 while the average for all other settings ranges from $54-$69/treatment day. For CORF OT, the average payment for treatment day was $108 compared to all other OT treatment setting averages ranging from $49 to $79/treatment day. The higher average payment per treatment day for CORF SLP services was not as pronounced as observed with PT and OT services, however it was significant. The average CORF SLP treatment day payment of $95 was higher than all other SLP settings that ranged from $65-86/treatment day.

While the number of visits, average payments, and average payments per treatment date per CORF episode were higher for all therapy types; they represented only a very small percentage of all episodes (2% of PT, 4% of OT, and 1% of SLP episodes).

2.16 Development of Clinical Classification Groups

To conduct the modeling analysis, we developed an outpatient therapy service clinical classification scheme derived from claim ICD-9 codes. The current ICD-9 coding system contains thousands of code options with distinctions that are too fine for classification. In order to create a reasonably efficient classification scheme, we needed to identify a limited number of clinical classification groups using available claims ICD-9 information. We considered various approaches and existing data to create a model that was both clinically intuitive and could reasonably predict Medicare expenditures for individual beneficiary episodes of care.

The methodology of using claims diagnostic information (ICD-9 codes) to identify individuals with certain clinical conditions or to classify patient groups according to severity of illness and potential costs of care has been well established in fields of health economics and epidemiology[82]. The methods differ in how they combine the specific ICD-9 codes to form the groups. Some methods require complex grouping algorithms while others aim for administrative simplicity. The same ICD-9 codes would be classified somewhat differently by each method. We elected to apply a relatively simple algorithm.

We created the following 21 clinical groups based upon: 1) the review of prior published research, 2) the clinical opinion of a physical therapist investigator on this project, and 3) review of our prior analysis of annual per-beneficiary therapy utilization patterns by principal claims diagnosis. Individuals who are classified into the same group are assumed to be clinically similar, have similar level of health risk, and require a similar level of care/expenditures[83]:

[82] Ash, A., et al., *Health Care Financing Review* 2000; 21:7-28.
[83] Ciolek, D., and Hwang, W.. *Development of a Model…* October 2004. Section 2.4.3 for complete details regarding the classification methodology. These assumptions require further analysis to assure their validity.

1. Amputation
2. Balance/Functional Movement
3. Cardiac/Vascular/Pulmonary
4. Chronic Ulcer of Skin
5. Communication Disorders
6. General Symptoms/Non-specific Impact/Others
7. Mental/Cognitive
8. Musculoskeletal – ankle/foot
9. Musculoskeletal – elbow to hand
10. Musculoskeletal – hip/pelvis/thigh
11. Musculoskeletal – knee/lower leg
12. Musculoskeletal – lumbar/thoracic
13. Musculoskeletal – multiple sites
14. Musculoskeletal – neck
15. Musculoskeletal – shoulder/upper arm
16. Musculoskeletal – site unspecified
17. Neurological – Central
18. Neurological – Peripheral
19. Spinal Cord Injury
20. Swallowing/Feeding Disorders
21. Systemic Disorders

Data analysis also indicated that there were potentially significant differences between the three types of therapies in both the diagnoses treated and expenditures associated with these diagnoses. Therefore we created separate analytic models to describe PT, OT, and SLP services. Our hypothesis was that while we initially would apply the same 21 AdvanceMed clinical groups to all three therapy models, future versions would customize the groupings by therapy type. For example, the number of SLP groups may be reduced to fewer than 10 groups, while PT and OT may have somewhere between 10 and 20 groups. However, the current groupings do permit some comparative analyses between therapy types.

2.17 Episodic Clinical Practice Patterns for the AdvanceMed Classification Groups

2.17.1 Physical Therapy Episodes

Musculoskeletal conditions overwhelmingly describe most PT episodes (Table 17). "Musculoskeletal – lumbar/thoracic" regions of the back represent the most commonly occurring clinical group for PT services at 18.5 percent of the 3.8 million episodes. In fact, nearly two-thirds of all PT episodes are represented by the top five musculoskeletal clinical groups as "lumbar/thoracic" episodes are followed in frequency by "Musculoskeletal – site unspecified" (13.9%), "Musculoskeletal - shoulder/upper arm" (11.1%), and "Musculoskeletal – neck" (7.5%). In addition, eleven percent of PT episodes were described by ICD-9 codes that were either too general, had a non-specific clinical impact, or could not otherwise be classified in the AdvanceMed model[84]. In contrast, "Neurologic –

[84] The 11.1% rate representing General/Non-specific/Other PT (clinically unidentifiable) episodes is not ideal but compares favorably to the 18% rate we observed when pilot testing a previously published classification scheme.

Central" disorders, including "Stroke" and "Parkinson's Disease", represent only 5.1 percent of PT treatment episodes.

However, the most common clinical conditions reported for PT services are markedly different from and unrelated to the average number of treatment days, average episode payment, and average payment per treatment. For example, although beneficiary episodes classified in the spinal cord injury group represent less than one-tenth of one percent of all PT episodes, they had the highest average episode payment at $1,012, the third highest average number of treatment days at 14.2, and the highest per treatment day average payment of $70 suggesting that although few in number, persons in the "Spinal Cord Injury" group that require PT, generally require moderate expenditures per visit, but more visits over a longer period of time than other conditions.

The condition group with the second highest average per episode PT paid amount ($984), was "Amputation." While it is not a common condition (only 0.3% of all PT episodes), the average duration of the episode for "Amputation" was 15.0 days, the highest among all PT classification groups. This suggests treatment over a longer period of time than most PT conditions. However, the average payment per treatment date of $65 is similar to the overall PT average of $63.

"Neurologic – Central" disorders have the third highest average per episode PT payment ($885). With an average number of treatment dates of 13.0 and an average payment per treatment day of $68, the results suggest that the central neurologic condition PT episode requires more costly treatment per visit and more visits than the average PT condition.

Table 17. Physical therapy outpatient episode patterns by AdvanceMed classification group[85]

PT episodes AdvanceMed clinical classification group	Number of PT episodes	Average number treatment days	Standard deviation treatment days	Average episode paid	Standard deviation episode paid	Payment per treatment day	Percent of total episodes
All PT Episodes	**3,776,459**	**10.6**	**11.7**	**$664**	**$903**	**$63**	**100.0%**
Amputation	9,935	15.0	16.9	$984	$1,273	$65	0.3%
Balance/Functional Movement	87,897	11.9	12.2	$786	$902	$66	2.3%
Cardiac/Vascular/Pulmonary	125,355	11.4	14.0	$734	$1,040	$64	3.3%
Chronic ulcer of skin	23,875	14.7	22.1	$706	$1,480	$48	0.6%
Communication	14,124	5.3	9.1	$364	$663	$69	0.4%
General/Non-Specific Impact/Other	415,945	9.9	12.5	$600	$895	$61	11.0%
Mental/Cognitive	34,047	12.5	14.8	$768	$964	$61	0.9%
Musculoskeletal-ankle/foot	144,748	7.4	8.7	$416	$641	$56	3.8%
Musculoskeletal-elbow to hand	67,319	9.5	10.3	$570	$782	$60	1.8%
Musculoskeletal-hip/pelvis/thigh	189,446	11.1	11.3	$702	$884	$63	5.0%
Musculoskeletal-knee/lower leg	376,264	11.1	10.9	$732	$897	$66	10.0%
Musculoskeletal-lumbar/thoracic	697,037	9.7	10.3	$602	$825	$62	18.5%
Musculoskeletal-multiple sites	46,735	11.4	12.3	$779	$1,161	$68	1.2%
Musculoskeletal-neck	282,738	9.7	9.8	$574	$756	$59	7.5%
Musculoskeletal-shoulder/upper arm	419,079	11.8	11.4	$715	$857	$61	11.1%
Musculoskeletal-site unspecified	525,241	10.7	11.7	$701	$943	$66	13.9%
Neurologic-Central	193,242	13.0	14.8	$885	$1,165	$68	5.1%
Neurologic-Peripheral	47,381	8.9	11.2	$529	$835	$59	1.3%
Spinal Cord Injury	832	14.2	20.4	$1,012	$1,754	$71	0.0%
Swallowing/Feeding Disorder	19,444	7.3	11.4	$513	$808	$70	0.5%
Systemic	55,775	11.1	14.4	$686	$1,040	$62	1.5%

[85] Ciolek, D., and Hwang, W.. *Development of a Model…* October 2004. p.35.

2.17.2 Occupational Therapy Episodes

Using the same 21 AdvanceMed clinical classification groups for OT service episodes (Table 18) reveals a different and less homogenous pattern than observed with PT episodes. The top five PT groups all represented musculoskeletal conditions, and they included nearly two-thirds of all PT episodes. The top five most common OT episode groups represent a variety of conditions and just over one-half (55%) of all OT episodes.

"Musculoskeletal - site unspecified" were the most frequently observed group for OT episodes at 16.7 percent. The classification groups describing the next most common OT episode types were central neurologic conditions (including "Stroke" and "Parkinson's Disease") at 15.6%, "Musculoskeletal – elbow to hand" at 9.5%, conditions affecting the "Cardiac/Vascular/Pulmonary" systems at 7.9%, and "Musculoskeletal – shoulder/upper arm" at 5.1%. In addition, nearly nineteen percent of OT episodes were described by ICD-9 codes that were either too general, had a non-specific clinical impact, or were not otherwise able to be classified in the AdvanceMed model[86].

Similar to PT, the OT pattern for average number of treatment dates per episode, average payments per episode and average payment per treatment date demonstrates that some less commonly occurring clinical conditions receive higher than average OT expenditures. For example, while the balance/functional movement disorders clinical group represents only 2.4% of OT episodes, it ranks first in average per episode payment at $954 and first in average number of treatment days per episode at 13.0. This group's average payment per treatment day of $74 is similar to the average for all OT groups indicating that the OT balance/functional movement disorders clinical group's higher cost is related to more treatment days rather than a higher number of services or units per service per treatment date.

The second ranked OT clinical group by average payment per episode ($954) is "Amputation." Similar to the "Balance/Functional" disorders group, it represents only a small portion of OT episodes (0.3%), ranks second in number of treatment days per episode at 12.6 days, and has an average payment per treatment day of $74. This indicates that the OT "Amputation" clinical group's higher cost is related to more treatments rather than higher expenditures per date of service.

"Musculoskeletal – neck" disorders ranked third in average paid amount per OT episode at $904, with an average of 10.0 treatment days per episode. This translates to an average payment per treatment date of $90, which is the highest per-day average payment among all OT clinical groups. "Musculoskeletal - multiple body sites" ranked fourth for OT average paid amount per episode, occurring over an average of 11.8 treatment dates.

The fifth ranked OT clinical classification group by average episode payment was the central neurologic disorder group, averaging $836 in per episode payments spanning an average of 11.4 treatment dates. The average OT payment per treatment date of $73 indicates that the increased episodic payment rate observed is related more to the number of treatments rather than higher expenditures per individual treatment date.

[86] The 18.8% rate representing "General/Non-specific/Other OT" (clinically unidentifiable) episodes is not ideal but compares favorably to the 24% rate we observed when pilot testing a previously published classification scheme.

Table 18. Occupational therapy outpatient episode patterns by AdvanceMed classification group[87]

OT episodes AdvanceMed clinical classification group	Number of OT episodes	Average number treatment days	Standard deviation treatment days	Average episode paid	Standard deviation episode paid	Payment per treatment day	Percent of total episodes
All OT Episodes	**823,619**	**10.4**	**11.8**	**$743**	**$990**	**$71**	**100.0%**
Amputation	2,520	12.6	15.0	$936	$1,233	$74	0.3%
Balance/Functional Movement	20,114	13.0	12.7	$954	$1,035	$74	2.4%
Cardiac/Vascular/Pulmonary	64,804	10.9	12.3	$786	$1,019	$72	7.9%
Chronic ulcer of skin	3,988	9.9	12.7	$647	$957	$66	0.5%
Communication	3,974	11.1	12.2	$724	$958	$65	0.5%
General/Non-Specific Impact/Other	155,170	9.9	12.0	$692	$967	$70	18.8%
Mental/Cognitive	34,368	10.4	12.5	$661	$846	$64	4.2%
Musculoskeletal-ankle/foot	3,144	10.8	12.7	$799	$1,048	$74	0.4%
Musculoskeletal-elbow to hand	78,044	8.6	9.2	$547	$703	$64	9.5%
Musculoskeletal-hip/pelvis/thigh	22,184	11.1	12.6	$817	$1,054	$74	2.7%
Musculoskeletal-knee/lower leg	14,769	8.8	11.0	$745	$1,077	$85	1.8%
Musculoskeletal-lumbar/thoracic	19,389	9.1	9.6	$792	$956	$87	2.4%
Musculoskeletal-multiple sites	13,424	11.8	11.6	$888	$1,067	$76	1.6%
Musculoskeletal-neck	7,872	10.0	9.6	$904	$100	$90	1.0%
Musculoskeletal-shoulder/upper arm	41,832	11.4	11.3	$815	$962	$71	5.1%
Musculoskeletal-site unspecified	137,854	11.0	11.6	$796	$1,009	$73	16.7%
Neurologic-Central	128,817	11.4	13.3	$836	$1,158	$73	15.6%
Neurologic-Peripheral	27,359	6.5	8.3	$441	$693	$67	3.3%
Spinal Cord Injury	438	10.3	15.3	$779	$1,321	$76	0.1%
Swallowing/Feeding Disorder	13,553	10.2	11.0	$702	$848	$69	1.6%
Systemic	30,002	10.4	12.1	$719	$953	$69	3.6%

2.17.3 Speech-Language Pathology Episodes

Speech-language pathology service episodes (Table 19) appear to represent the most homogenous clinical conditions of the three therapy types studied. Of the 21 AdvanceMed clinical classification groups used in this study, five groups represent over seventy-five percent of all SLP episodes. For SLP, the "Swallowing/Feeding Disorders" clinical group was by far the most commonly occurring type of clinical episode at 38.4%. Among the other more common SLP episode types were; "Neurologic – Central" conditions (including "Stroke" and "Parkinson's Disease") at 17.7%, "Communication" disorders at 7.8%, "Cardiac/Vascular/Pulmonary" disorders at 6.6%, and "Mental/Cognitive" disorders at 5.2%. In addition, twelve percent of SLP episodes were described by ICD-9 codes that were either too general, had a non-specific clinical impact, or were not otherwise able to be classified in the AdvanceMed model[88].

One indicator of the relative intensity of services furnished for a given condition is the measurement of average payment per treatment date. Unlike the pattern observed for PT and OT episodes that demonstrated that certain clinical classification groups receive higher payments per treatment date than other groups, no such obvious pattern exists for SLP services. While the average payment per treatment date for all SLP services is $85, the average for the most commonly occurring SLP groups only varies within a small range ($83-88). This could suggest that SLP services are typically furnished at a similar intensity for all patient conditions on any given treatment date, or could suggest

[87] Ciolek, D., and Hwang, W.. *Development of a Model….* October 2004. p.37.

[88] The 12.0% rate representing "General/Non-specific/Other SLP" (clinically unidentifiable) episodes is not ideal but compares favorably to the 14% rate we observed when pilot testing a previously published classification scheme. It emphasizes our frequent observation that diagnosis reporting needs improvement, or a new method of collecting clinical information other than the claim may be necessary.

a lack of sensitivity in the current fee schedule structure to describe variations in SLP treatments themselves. Note that most of the codes are non-timed, typically once-a-day codes. However, since most SLP clinical groups also had an average number of treatment days per episode that were similar as well (range 4.9 days-9.5 days for common clinical groups), it is unlikely that the fee schedule structure has significant impact on SLP payments.

Among the five most commonly occurring SLP clinical classification groups there appear to be different patterns in how the services are furnished during an episode. For example, the most common episode clinical group, "Swallowing/Feeding Disorders" reflects a markedly lower average paid amount per episode at $435. In addition, the average number of treatment dates for this group of 4.9 dates is also the smallest of all SLP groups. It is likely, however, that this large group (38.4%) of SLP episodes may actually represent two or more different subgroups.

For example, the current AdvanceMed clinical classification model does not differentiate "Swallowing/Feeding Disorders" into subgroups of individuals that received only a swallowing evaluation during an episode from those individuals that received an evaluation and/or treatment[89]. If so, one would expect that the evaluation-only group would have a low average paid amount and low average number of treatment dates while the evaluation and/or treatment group averages could increase to levels that might actually be higher than average rather than the currently reflected low numbers. This is an important distinction especially for payment policy considerations.

A SLP episodic payment pattern that follows as anticipated is that for the central neurologic conditions group. It has the highest average per episode payment rate of $785 and the greatest average number of visits at 9.5 days. Similar to the "Swallowing/Feeding Disorders" group, payment policy consideration should be given regarding the actual treatment being provided under the SLP plan of care. For example, some individuals with central neurologic involvement may present with swallowing/feeding disorders, while others may present with communication disorders, or some individuals may present with both groups of disorders. Differentiating these sub-groups may help identify distinctive clinical patterns not currently apparent.

When "Communication" disorders can be identified, that clinical group demonstrates an average episode payment amount of $638, with an average number of treatment days of 8.1 ranking it second in both categories for SLP. Rounding out the major SLP groups are "Cardiac/Vascular/Pulmonary" conditions and "Mental/Cognitive" disorders with episode cost averages of $644 and $604 respectively, and average per episode treatment days of 7.4 and 7.3 days. Overall, these three clinical groups do not appear to have obvious differences in payment or treatment intensity from each other, but they do appear to demonstrate different patterns from the "Swallowing/Feeding Disorders" group and "Neurologic – Central" disorders group.

[89] Such a differentiation could be considered in future versions of this model.

Table 19. Speech-language pathology outpatient episode patterns by AdvanceMed classification group[90]

SLP episodes AdvanceMed clinical classification group	Number of SLP episodes	Average number treatment days	Standard deviation treatment days	Average episode paid	Standard deviation episode paid	Payment per treatment day	Percent of total episodes
All SLP Episodes	**403,770**	**6.9**	**9.8**	**$586**	**$889**	**$85**	**100.0%**
Amputation	392	8.8	11.0	$750	$1,035	$85	0.1%
Balance/Functional Movement	4,526	9.7	10.6	$814	$971	$84	1.1%
Cardiac/Vascular/Pulmonary	26,806	7.4	9.9	$644	$911	$87	6.6%
Chronic ulcer of skin	1,248	7.4	9.4	$634	$855	$85	0.3%
Communication	31,319	8.1	11.5	$638	$1,006	$78	7.8%
General/Non-Specific Impact/Other	48,257	6.6	9.5	$560	$887	$85	12.0%
Mental/Cognitive	21,125	7.3	9.0	$604	$806	$83	5.2%
Musculoskeletal-ankle/foot	365	7.2	9.2	$586	$762	$82	0.1%
Musculoskeletal-elbow to hand	973	8.1	9.4	$698	$898	$86	0.2%
Musculoskeletal-hip/pelvis/thigh	5,125	7.8	9.6	$666	$891	$86	1.3%
Musculoskeletal-knee/lower leg	1,017	7.4	8.7	$622	$799	$84	0.3%
Musculoskeletal-lumbar/thoracic	1,412	7.5	9.1	$630	$923	$84	0.3%
Musculoskeletal-multiple sites	1,280	8.8	10.2	$769	$1,034	$87	0.3%
Musculoskeletal-neck	424	5.9	9.1	$508	$937	$86	0.1%
Musculoskeletal-shoulder/upper arm	1,069	8.2	9.6	$661	$812	$81	0.3%
Musculoskeletal-site unspecified	19,415	9.3	10.9	$780	$993	$84	4.8%
Neurologic-Central	71,463	9.5	12.2	$785	$1,117	$83	17.7%
Neurologic-Peripheral	1,251	7.8	10.1	$614	$882	$79	0.3%
Spinal Cord Injury	24	8.2	7.7	$635	$562	$77	0.0%
Swallowing/Feeding Disorder	155,015	4.9	7.6	$435	$684	$88	38.4%
Systemic	11,264	7.6	9.3	$656	$883	$87	2.8%

[90] Ciolek, D., and Hwang, W.. *Development of a Model.*... October 2004. p.40.

3.0 Implications of CY 2002 Outpatient Therapy Utilization Findings on Alternative Payment System Options

In our earlier *Strategy* report, we offered a preliminary examination of short and long-term alternative outpatient therapy payment model options[91]. In particular, we discussed the technical feasibility, regulatory and statutory implications, and projected timeframe for implementation of the various options if were they to proceed. The discussion was based on current policy and upon the outpatient therapy utilization data available from the earlier utilization reports describing CY 1998 through CY 2000. The following updates the discussion of those options within the context of the findings in our examination of CY 2002 outpatient therapy claims.

Our approach to examining these options was that; an underlying premise of any alternative payment policy approach under Medicare is for the following goals to be considered. The methods should:

- Continue to ensure beneficiary access to quality care;
- Be easy to administer;
- Be capable of being implemented quickly;
- Ensure predictability of government outlays and integrity of the Medicare program;
- Help providers predict their Medicare revenues;
- Establish the Federal government as a prudent buyer of services; and,
- Should minimize administrative burden.

In addition, from an Agency perspective, CMS indicated that consideration should also be given to ways to pay claims that; minimize the need for manual review, create incentives for the appropriate use of services, reduce contractor workload, could be budget neutral with other proposed approaches, and be appropriate for education of providers and Medicare contractors.

3.1 Option 1: Impose volume controls

The imposition of volume controls as an alternative to annual per-beneficiary payment limitations would allow for the continuation of paying for outpatient therapy services under the Medicare fee schedule. In theory, volume controls would permit CMS to administratively adjust procedure code pricing to offset any increases in unit volume billed the prior year. Simply stated, when the volume of procedures increases one year, then the price per procedure is adjusted downwards the subsequent year, thereby maintaining budget neutrality.

One approach would be to integrate all outpatient therapy services into the sustainable growth rate (SGR) used under the fee schedule. In our earlier *Feasibility and Impact Analysis* report, we indicate that, although excluded from the SGR formula, institutional providers furnish about two-thirds of outpatient therapy procedures[92]. In addition, the data indicates that institutional providers generally furnish proportionately more one-to-one procedures that have higher relative value pricing. By including institutional provider procedure volume into the SGR formula, a more precise representation of outpatient therapy services could be made.

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[91] Ciolek, D., Hwang, W., and Olshin, J.. *Strategy….* April 2004. Section 6. p. 25.
[92] Ciolek, D., and Hwang, W.. *Feasibility and Impact Analysis*…. April 2004. Table 3. p. 17.

However, this approach would be extremely difficult to implement administratively. Currently, the fee schedule procedure volume estimates only use Medicare carrier claims data. Therefore the volume of outpatient therapy procedures billed by outpatient hospitals, SNFs, CORFs, ORFs, and HHAs, are not currently represented in fee schedule pricing. Including institutional provider outpatient therapy procedures might also significantly impact procedure pricing for all procedures in the SGR, not just therapy procedures.

This approach might help limit growth in spending, but has a number of other limitations. First, there is a time lag in that pricing for one year is based upon the prior year's billing activity. Second, since outpatient therapy only represents about two percent of total Part B Trust Fund expenditures, significant changes in procedure volume may not impact overall pricing, thereby limiting the goal at targeting growth of outpatient therapy spending. And finally, this methodology does not provide an incentive for providing appropriate services; it in fact provides incentives for overutilization while reducing reimbursements for providers that provide appropriate utilization. For example, if left unchecked, some providers could increase the volume of services to offset lower pricing. Ultimately, the procedure pricing could drop to a level that fewer providers would elect to participate in the Medicare program.

A second approach would be to establish a separate SGR for outpatient therapy services. In other words, outpatient therapy services would be allocated a set portion of Part B expenditures and a separate SGR will be calculated for those procedures placed in the outpatient therapy procedures group. With this approach, changes in outpatient therapy procedure code volume would not impact the pricing of non-therapy procedures (e.g. surgical procedures). This approach would also be administratively difficult if it required the merging of carrier and intermediary processed outpatient therapy claims data; however, it would be better able to respond to specific unusual fluctuations in outpatient therapy procedure volume billing from year-to-year. Similar to the first approach, this volume control methodology does not provide an incentive for providing appropriate services.

3.2 Option 2: Create alternative applications of the original payment caps

The creation of alternative applications of the original outpatient therapy caps would also continue payments for outpatient therapy services under the Medicare Physician Fee Schedule. Some of the options include:

- Increasing the dollar amounts for the existing two limits (PT/SLP combined and OT separate) in statute;
- Combining the existing two limits into a single outpatient therapy (PT/OT/SLP combined) cap;
- Separating the two exiting outpatient therapy limits by type of therapy into three separate PT, OT and SLP caps; and,
- Increasing the growth rate for the therapy caps.

Such options presume that the financial limitations would continue to be placed on a per-beneficiary annual utilization of services across most settings, and that hospital outpatient therapy services would continue to be exempted from the cap limits. In theory, these options would reduce the financial impact of the caps on individual beneficiaries by allowing beneficiaries that cannot access, or choose not to access hospital outpatient therapy services to receive additional services before reaching the

cap payment threshold. However, if all such beneficiaries were physically able to access outpatient hospital services, the projected cost savings would not be realized.

Since CMS was able to implement the annual per-beneficiary limitations from September 1, 2003 through December 7, 2003 with the MEI adjusted limit of $1590 for each of the two caps, it would appear that this approach is technically feasible since it primarily involves minor adjustments in systems programming.

In reality, unless a "debit-card" type of system were implemented, it would be virtually impossible to provide real-time information to beneficiaries and providers regarding current available outpatient therapy benefits. Such a system would require claims to be submitted and processed on the date of service. Current statute mandates that providers may submit claims up to a year after the date of service[93], and CMS administratively permits a slightly longer period[94]. In addition, current claims processing instructions require Medicare contractors to hold payments fourteen days for electronically submitted claims and at least twenty-eight days for paper claims. Statutory and regulatory changes would be necessary for real-time reporting of the remaining individual beneficiary's cap benefit amount remaining.

Currently, the debit counted against the payment limitations is applied on a first-come, first-serve basis. Therefore, providers that submit claims on a daily basis (e.g. individual practitioners) are at a financial advantage over providers that submit outpatient therapy claims monthly (e.g. SNF). Providers that treat a beneficiary first may end up with payment denials because a subsequent provider furnishing services at a later date had their claims processed sooner, using up the benefit limits. Overall, this option would negatively impact the goal of giving a provider the ability to predict Medicare payments.

The objective of ensuring beneficiary access to quality care may not be adequately impacted by any of these four options. While actions to manipulate the number of caps from one single cap to three separate annual limitations for PT, OT, and SLP services or of increasing the growth rate of the caps may permit some beneficiaries to receive some additional services, the CY 2002 data demonstrates that *particular beneficiary populations will be disproportionately impacted by any form of payment limitation that does not consider beneficiary condition or diagnosis, age, gender and state of residence*. For example, the data reveals that as beneficiaries get older, they are more likely to surpass the annual therapy cap thresholds. This is a consistent pattern for all three therapy types. Females also surpass the *annual* therapy limit thresholds at a higher rate than males (which is an interesting contrast to the *episodic* regression analysis where males are likely to generate higher expenditures per episode for PT and SLP services).

In addition, as discussed in Section 2.11, it is questionable whether the hospital outpatient services exemption from the financial limitations is an equitable remedy to ensure beneficiary access to outpatient therapy services should the threshold be reached in another provider setting. The data presented in our recent *Utilization Analysis* report indicated that when the payment caps were applied against CY 2002 outpatient therapy utilization, those beneficiaries that either could not or chose not to receive therapy services from a hospital outpatient provider were much more likely to surpass the financial limitations that those beneficiaries that did receive services from outpatient hospitals.

[93] SSA §1848(g)(4)(A).
[94] Medicare Claims Processing Manual. Pub. 100-104, Chapter 1, Section 70.

The data suggests that beneficiaries typically do not change outpatient therapy providers. This is a consistent pattern with prior studies. Even when there were per-provider financial limitations enforced during CY 1999, few beneficiaries changed from a capped provider to another provider to enable continued benefits[95]. Overall, it does not appear that the hospital outpatient exception would be used by beneficiaries to access additional covered outpatient therapy services.

If any of these four options were pursued to change the number of caps and/or raise the cap thresholds, then there would only need to be minimal updates to the statute and regulations to address the new cap structure and payment limits methodology. However, significant statutory, regulatory and systems changes would be required to address real-time reporting of cap limit benefit availability, or at a minimum, to pay the capped benefit by date of service rather than by claim processing date.

3.3 Option 3: Track outpatient therapy expenditures on a different basis than the per-beneficiary basis currently required

Another payment policy variation of a capped benefit that has been suggested is to track expenditures on another basis other that the current statutory language requiring per-beneficiary per-year caps. In our April 2004 report, we discussed the merits of three such options. They were:

- Limit the number of visits or services permitted rather than payment amount;
- Implement the financial limitations on a per-beneficiary per-provider basis; and,
- Apply the limits on a provider level.

The option to replace the existing per-beneficiary dollar caps with another methodology such as limits on the number of visits or services rather than payment could conceptually alleviate the current disparity observed in the data related to geographic variations in fee schedule pricing. Since outpatient therapy providers paid under the Medicare fee schedule are now all required to submit claims by individual procedures for each treatment date, CMS has the conceptual ability to track utilization by such a methodology. In addition, the CY 2002 utilization patterns we reported could provide a baseline for further development of this concept.

However, providing a set limit on the number of visits or services could create vulnerabilities requiring additional administrative oversight. For example, the episodic data analysis described in Section 2.17 indicates that certain conditions for all three therapy types have different patterns of service delivery. Some conditions are more likely to have few treatment dates, but high expenditures per treatment day. Other conditions show the opposite pattern. A payment policy that places fixed limits on visits that does not address beneficiary characteristics may impact clinical practice patterns, including providing incentives for increased utilization per visit.

The option to implement a per-beneficiary per-provider annual financial limitation would essentially replicate how CMS actually enforced the caps during CY 1999. With this model, beneficiaries could receive up to the annual capped dollar amount in outpatient therapy benefit from one provider. Then they could change providers in order to "reset the bank" and access a separate capped amount from another provider. Essentially, this option would expand the outpatient hospital exception described

[95] Table 4 in Maxwell, S., et al., *Part B Therapy Services….* September 2001, the authors report that the percentage of beneficiaries receiving outpatient therapy from multiple provider settings actually dropped from 10.2 percent in CY 1998 to 9.4 percent in CY 1999.

previously in Section 2.11 and Section 3.2 so that beneficiaries who cannot or choose not to access outpatient hospital services would be able to continue their benefit at another provider of choice. This approach would require only tracking at the provider level and the limit could, therefore, be tracked at the Medicare contractor or at the Common Working File (CWF) nationally.

However, a per-beneficiary per-provider annual financial limitation has numerous vulnerabilities that could impact controlling expenditures as well as the quality of care provided to beneficiaries. From a quality of care perspective, it is counterintuitive for a payment policy to force a beneficiary to change providers in order to receive additional coverage. The data demonstrates consistently that outpatient therapy patients rarely change providers, even when the option for further covered services was available during CY 1999. From a cost control perspective, if there were a change in beneficiary behavior, and they did begin to change providers to receive additional benefits, then the anticipated expenditure reductions would not be realized. Additional regulatory safeguards would need to be established to examine provider referral patterns, patterns of provider "clustering" and other provider behaviors that may inappropriately encourage beneficiaries to seek additional services from another provider after the financial limit threshold has been reached.

Yet another payment policy option variation is to apply the limits on a provider (or facility) level, that is, to apply limits to facilities that are averaged across all therapy patients treated during the year. In theory, this could reduce an incentive for providers to "cherry pick" patients in order to avoid high expenditure patients. This could also alleviate some of the concerns voiced by SNF advocates that cite that some beneficiaries cannot use the outpatient hospital exception because they are either physically unable to get to a hospital outpatient therapy provider, or they are prohibited to use the exception because of Consolidated Billing requirements. In this model, whatever cap amount is not used for one beneficiary is reallocated to the facility to use for other beneficiaries who would otherwise exceed the cap threshold amount.

However, there are numerous technical challenges to this approach that applies concepts of case-mix averaging. While this approach may be feasible for large providers that treat great numbers of beneficiaries with a wide range of conditions, the majority of outpatient therapy providers have relatively small patient populations and relatively homogenous case-mixes. It would also be administratively complex to overlay such case-mix averaging approaches on top of a fee-schedule based payment system without reverting back to complex cost-reporting methodologies.

3.4 Option 4: Allow higher caps for patients with greater need

Payment policy variations that maintain the basic outpatient therapy cap limits, but would permit additional services to beneficiaries with clinical characteristics that are believed to require a greater amount of therapy services than the typical patient, reflect a partial attempt at addressing perceived inequities of a single cap threshold dollar amount for all beneficiaries. Among the variations of this option that have been discussed include:

- Applying higher caps for beneficiaries with characteristics that predict higher needs;
- Exempt particular conditions or combinations of conditions from the limits; and,
- Set an outlier pool on a beneficiary basis.

These approaches essentially create an outlier pool comprised of beneficiaries that present with clinical characteristics that would qualify for outpatient therapy coverage beyond the annual financial

limitations. There are variations between the models in how the policy option would be applied to those with the identified greatest need. Such outliers could be incorporated into the existing two caps or in revised models using one or three separate limitations.

The underlying premise of a payment model that includes an outlier pool is that beneficiaries in need can be appropriately classified. Currently there are inconsistencies in diagnosis reporting requirements for providers that submit claims to carriers versus intermediaries; this creates challenges in classifying beneficiaries. As discussed in Section 2.5.4, one particular limitation is the inability to assure that the claim diagnosis best represents the specific outpatient therapy treatment diagnosis, or that the reported diagnosis sufficiently describes the beneficiary condition. However, the improvement of claims reporting requirements and/or the development and implementation of a standardized outpatient therapy patient assessment instrument requested in the BIPA 2000 legislation would improve the power of patient classification methodologies.

In addition to claim diagnosis limitations, if a beneficiary has multiple claims submitted during a calendar year, or has multiple episodes of care for different conditions, then complex administrative activities would be necessary to determine under what conditions a beneficiary would qualify as an outlier. For example, would the policy provide equitable benefits to the beneficiary who suffered a stroke early in the year and subsequently had an ankle sprain later, as compared with a beneficiary who sustained a sprained ankle first and had a stroke later?

Our outpatient therapy cap and episode modeling analysis using CY 2002 outpatient therapy claims described in Section 2.10 and Section 2.12 through Section 2.16 has demonstrated that current claims data has sufficient information to form the basis for patient classification. *However the results indicate that there are currently no diagnoses or clinical classification groups that can be specifically identified, based upon claim diagnosis or demographic variables, to qualify for an outlier payment exception.* We speculate that other factors, such as functional status, restoration potential, or expected outcome may be necessary to appropriately identify and justify outliers. Without such consideration, there may be vulnerabilities created for provider incentives to upcode beneficiary conditions in order to permit the outlier payment classification.

Another obstacle is the lack of information related to the medical necessity of the services furnished when using claims data to establish outliers. At best, utilization analysis can describe utilization patterns. Only scientific research, clinical expertise, and medical review could provide assurance that high expenditure conditions actually require an outlier exception to a capped benefit.

3.5 Option 5: Intensify and expand medical review efforts

An option to intensify and expand medical review efforts targeting outpatient therapy services in lieu of payment caps would be prohibitively expensive and extremely burdensome on providers and Medicare contractors. Like other Medicare providers, the great majority of outpatient therapy providers submit claims appropriately. Medicare's current Program Integrity (PI) strategy directs contractors to use data analysis within their current budgets to focus their resources on the most aberrant providers. Although we did not conduct medical review of the CY 2002 outpatient therapy claims we analyzed, these national utilization analysis patterns can be used to support the identification of unusual billing patterns that could be targeted for medical review within existing contractor procedures.

3.6 Option 6: Extend the moratorium or delete outpatient therapy caps

The option to extend the moratorium or delete the outpatient therapy caps would eliminate the barrier to the amount of covered outpatient therapy services a beneficiary could receive, regardless of condition. However, if this approach were implemented in isolation, the objectives of reducing unnecessary services and controlling spending growth would not be met.

4.0 Introducing a New Option: Implementing a "Global Approach" to Achieve a Long-Term Outpatient Therapy Payment System Solution

To date, the data and policy analysis has shown that there is insufficient information available today to support the near-term implementation of an alternative payment system for outpatient therapy services based upon beneficiary condition or diagnosis, restoration potential, or clinical outcomes. However, significant positive strides have been taken by CMS in recent years. The robustness of claims data available in this and earlier reports suggest such a long-term option can be made viable.

With regards to the near-term, the data has also shown that there is no single best approach to providing beneficiaries with necessary outpatient therapy services while limiting expenditures for unnecessary or abusive services. The data has revealed that any one of the near-term alternative payment policy options, taken in isolation, is likely to create a number of vulnerabilities. In addition, isolated payment policy revisions targeting cost containment without considering beneficiary need for services may create inequities for beneficiaries and delay or prevent the long-term development of a payment system based upon beneficiary characteristics.

Perhaps a more appropriate and equitable approach would be for CMS to implement a "global approach" near-term payment policy option that implements a "best-fit" strategy. The "global approach" could use data, expert opinion, and clinical research findings to manage outpatient therapy services, and could take into account workable components of a number of the options presented. In addition, the "global approach" could be introduced in a step-wise manner that would minimize unintended consequences of denying payment for appropriate beneficiary services while limiting unnecessary expenditures. This approach could also be built within an administrative objective of working towards the development of a beneficiary-based payment model. Ultimately, the "global approach" permits CMS the greatest flexibility to reduce unnecessary expenditures and promote clinically appropriate service delivery patterns. The following discussion introduces specific activities that are realistic and achievable in the near-term.

4.1 Components of a "global approach" option

4.1.1 Payments based on Medicare Physician Fee Schedule

A "global approach" would not require the creation of new statute or regulation in the near-term as providers could continue to furnish and bill for services using Medicare Physician Fee Schedule procedure codes. Maintaining the fee schedule would not provide an additional burden on beneficiaries, providers or Medicare contractors.

4.1.2 Elimination of the annual per-beneficiary financial limitations

The data has demonstrated that all variations of financial coverage limitations, even with exceptions, create a disproportionate impact on beneficiaries with particular demographic and clinical characteristics. They also create incentives to generate inappropriate claims. In addition, the future development of a condition-based payment system would be negatively impacted if financial limitations were in place that prevented examination of utilization patterns of traditionally higher-cost beneficiaries or conditions. Elimination of the caps would also eliminate a number of burdensome cap-tracking administrative activities. ***The budgetary targets of controlling the growth of outpatient therapy expenditures that were expected from the financial limitations could be achieved by the following CMS administrative actions.***

4.1.3 Ongoing data analysis to reveal claim patterns that identify targets for utilization limits

Our data analysis has identified a potential for the use of national coverage edits that could be applied to a number of variables including the number of procedures per treatment date and number of treatment dates per episode for particular condition classification groups. Ongoing data analysis of outpatient therapy services at a national level would support Medicare contractor program integrity medical review efforts and CMS national efforts at developing better ways to reinforce the proper delivery of outpatient therapy services that includes policymaking and provider and contractor education.

4.1.4 Initial implementation of various utilization limits administratively, to be updated annually, to assure budget neutrality

CMS claims data can now be effectively used to identify and implement reasonable outpatient therapy utilization limits on a number of claim variables to minimize program vulnerabilities while maximizing beneficiary access to necessary services. The dollar impact of the utilization thresholds can be accurately simulated to permit CMS to determine appropriate/equitable limit thresholds. For example, utilization limits on individual claim procedures billed could protect the Trust Fund from improper payments related to data entry errors or "medically unbelievable services[96]." Episodic data may help identify reasonable coverage limits based upon condition or diagnosis. Overall, the integrated approach of applying various limits is that the limits would be placed as equitably as feasible across all beneficiaries regardless of condition. This approach would not restrict a beneficiary's appeal rights. In addition, by incorporating utilization limits development into the Federal Rulemaking Process, beneficiaries and providers would have the opportunity to provide public comment.

4.1.5 Longer-term development of national coverage decision (NCD) policies for outpatient therapy services

Currently, some local Medicare contractors have Local Coverage Determination (LCD) policies that contain outpatient therapy utilization medical necessity limits. These policies are intentionally designed to address local issues. However, other Medicare contractors do not have LCDs that assist outpatient therapy providers to identify appropriate service utilization patterns. The resulting inconsistency in policy between Medicare contractors creates challenges in provider education and policy compliance.

A "global approach" could use a step-wise strategy to develop a national outpatient therapy policy (or separate outpatient PT, OT and SLP policies) that lays out what are reasonable and necessary patterns of service delivery nationwide. In the "global approach", statistical methods could be used to identify targets to consider for payment limitations that address the best available information regarding beneficiary condition or diagnosis, age, gender, and other appropriate variables as identified. Other variables could be collected with the development of a standardized outpatient therapy assessment instrument. Once identified statistically, expert opinion and clinical research findings could be introduced to administratively develop national coverage determination (NCD) policies to assure that when limits are applied, that they are equitably applied regardless of beneficiary condition.

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[96] On April 16, 2004 CMS published an updated policy in the Program Integrity Manual (Pub. 100-08) Transmittal 72, CR 3088. Implementation date: May 1, 2004. This policy permits automated edits to deny payment for excessive procedure units billed on a claim.

4.1.6 Development of a standardized outpatient therapy patient assessment instrument

It is unlikely that the type of clinical information necessary to adequately describe outpatient therapy services for the development of a condition-based patient classification scheme with high predictive power will ever become available using claims data alone. The more quickly that CMS can develop and implement a standardized outpatient therapy patient assessment instrument, the more quickly information can be gathered towards this purpose.

4.1.7 Long-term development of a condition based outpatient therapy payment system

Ultimately, the prior six steps may prove to be satisfactory in achieving the goals of assuring beneficiary access to quality services while ensuring predictability of Medicare outlays and integrity if the Medicare program, all while minimizing administrative burden. However, by pursuing a step-wise "global approach" to controlling outpatient therapy expenditures equitably across all beneficiaries, and by improving the classification of beneficiaries into clinically appropriate groups, CMS will be better prepared to describe the role outpatient therapy services plays within the healthcare continuum.

5.0 Future Steps to Payment System Development

The following outline is proposed as a plan for achieving an alternative payment system that is based on a global approach to limiting therapy services.

1. Obtain administrative support for the concept of global limitations.
2. Develop a database that is updated quarterly with fresh data on the utilization of therapy services. This is important to the monitoring of each limitation as it is implemented and to responding appropriately if unintended consequences arise.
3. Update the current information with 2003 data.
4. Modify and test the models against historical and recent data to determine how changes to the system may affect changes in practice patterns.
5. Develop a way to include outcome information into the study of therapy services. Outcome data is vital to the development of a system that limits the unnecessary and permits as much necessary treatment as possible. Then, determine whether an outcome-measuring instrument is feasible.
6. Engage therapy associations in the development of clinical practice guidelines that can be used to support "global approach" limits on therapy services on several levels (perhaps at the unit, visit or episode levels).
7. Diagnosis provided on the claim must be improved. The diagnosis must be accurate and specific to each service provided and to each discipline providing the service. Without better diagnostic reporting, it will be impossible to develop a system that is consistent with patient condition. This may be achieved by education efforts, improved claim billing form, improved claim billing directions, editing for nonspecific codes, or the creation of a separate outpatient therapy assessment instrument.

6.0 Summary

This final project report of the Outpatient Rehabilitation Services Payment System Evaluation contract activities conducted during the past year, summarized the results of various outpatient therapy services data analysis and payment system modeling activities conducted on a 100 percent sample file of CY 2002 outpatient therapy claims. Our findings were compared with earlier outpatient therapy utilization studies to help identify trends, particularly in relationship to payment policy changes, and the estimated beneficiary demographic impact of the annual per-beneficiary payment caps.

An underlying theme of the contract was to help CMS determine if sufficient claims data information is available that could be used to develop an effective beneficiary or condition-centered outpatient therapy payment system. Also, to consider if this alternative system, or parts of it, could be implemented in a reasonable period of time so there would not be a need for the caps to be reimposed on January 1, 2006.

Our data analysis and preliminary patient classification payment system modeling activities demonstrated that CMS now has the essential data elements contained in outpatient therapy claims data to provide the foundation for a condition-based payment system model. In addition, if the annual per-beneficiary financial limitations were eliminated, CMS could effectively initiate a "global approach" that uses data, expert opinion, clinical research, and the public rulemaking process to assure the most equitable beneficiary access to outpatient therapy services while achieving budget neutrality. The "global approach" would serve to minimize the numerous vulnerabilities inherent with other suggested options, and could ultimately lead to an effective beneficiary condition or diagnosis based outpatient therapy payment system.