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APPENDIX A

DEVELOPING OUTPATIENT THERAPY PAYMENT ALTERNATIVES (DOTPA): 2007 UTILIZATION REPORT

June 2009

Developing Outpatient Therapy Payment Alternatives (DOTPA): 2007 Utilization Report

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UTILIZATION REPORT

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SECTION 1 INTRODUCTION

1.1 Background

In 2007, the Centers for Medicare and Medicaid Services established a research project titled “Developing Outpatient Therapy Payment Alternatives” (DOTPA). The purposes of this project are to identify, collect, and analyze therapy-related information tied to beneficiary need and the effectiveness of outpatient therapy services. The ultimate goal is to develop payment method alternatives to the current financial cap on outpatient therapy services.

Outpatient therapy services are composed of physical therapy (PT), occupational therapy (OT), and speech language pathology (SLP). Outpatient therapy services are billed under Medicare Part B and are provided in multiple settings including community-based, e.g., private practices, hospital outpatient clinics, and facility-based, e.g., skilled nursing homes, long term care facilities.

These services represent a small but growing share of the Medicare expenditures, accounting for about 3.5 percent of Medicare Part B spending in 2007. The past growth in Medicare expenditures led to increased attention to these services. Attempts to address the increased expenditures through payment policy changes led to the realization that CMS cannot adequately assess the appropriateness of utilization patterns or the impact of changes in payment policy without access to better information tied to patient need and the effectiveness of outpatient therapy services.

Significant changes in Medicare outpatient therapy payment policies began with the Balanced Budget Act (BBA) of 1997 with its attempts to “level the playing field” and pay therapy providers consistently across sites of care. Hospitals (including inpatient rehabilitation facilities (IRFs)), skilled nursing facilities (SNFs), and home health agencies (HHAs) have moved to new, case-mix adjusted prospective payment systems (PPS) for these services. However, the outpatient therapy providers were addressed separately from the outpatient PPS. First, outpatient therapy services furnished by providers were moved to fee schedules to be more consistent with other outpatient payment methodologies. Second, annual financial limits (“therapy caps”), already in place for physical therapy and occupational therapy private practice patients, were extended to all other outpatient settings except hospital-based services. Congress implemented temporary moratoria on the therapy caps for several years and in the Deficit Reduction Act of 2005 required CMS to establish in 2006 an exceptions process to allow the provision of medically necessary therapy services that would otherwise exceed the therapy cap. Subsequently, the Tax Relief and Health Care Act of 2006 extended this exceptions process for services furnished in 2007 and the Medicare, Medicaid, and SCHIP Extension Act of 2007 extended the exceptions process for services furnished through June 30, 2008. The exceptions process is a refinement of the therapy caps, not an alternative. The cap and exceptions method of payment addresses cost containment but does not address the fundamental issue of assuring that appropriate therapy services are provided to the beneficiary efficiently.

1.2 Purpose

The purpose of this report is to provide a high-level analysis of the utilization of and expenditures for outpatient therapy services in CY2007. These analyses update the previous utilization analyses conducted by CSC for data between 1998 and 2006 (Ciolek and Hwang, 2006, 2008).

1.3 Key Results

The key results in this report are as follows:

- Medicare expenditures for outpatient therapy were over \$4.3 billion in CY 2007. This represents a 6.6 percent increase from CY 2006. Almost three-quarters (74 percent) of the CY 2007 expenditures were for physical therapy (PT), followed by 19 percent for occupational therapy (OT) and 7 percent for speech language pathology (SLP).
- PT users were on average younger than OT and SLP users. Mean expenditures per user increased with the age of the beneficiaries. Overall, average per user expenditures increased from \$934 in 2006 to \$994 in 2007.
- Similar to patterns found in 2006 and earlier years, outpatient therapy users in 2007 were disproportionately female. While 56 percent of Medicare FFS beneficiaries were female, almost two-thirds of outpatient therapy users were female.
- Medicare expenditures for outpatient therapy varied considerably across different states, which could reflect regional differences in supply of therapy providers, or regional differences in practice patterns, or regional differences in the case-mix of patients.
- The distribution of the settings providing outpatient therapy has shifted in the last few years away from facilities (hospitals, etc.) and physician offices and toward therapists in private practice (PTPP and OTPP). From 2006 to 2007, there was more than a 16 percent decrease in the number of CORF and HHA facilities, while the number of PTPPs and OTPPs increased by 8 percent.
- Facility settings still account for the greater proportion of outpatient therapy expenditures, with skilled nursing facilities (SNFs) accounting for almost one third of payments in 2007. The demographic characteristic differing most by setting is age, with older patients, who have higher therapy expenditures on average, being more likely to be treated in facility-based settings. The distributions of these therapy expenditures across settings were fairly similar in both 2006 and 2007.
- Over 80 percent of outpatient therapy users received only one type of therapy (PT, OT, or SLP) in 2007. Therapy users seen in SNFs and CORFs were the most likely to receive two or more types of therapy in the year.
- Almost 95 percent of all outpatient therapy claim lines and Medicare payments in both CY 2006 and CY 2007 were represented by just 15 Healthcare Common

Procedure Coding System (HCPCS) codes.¹ The specific services comprising the top-15 varied across settings.

- Comparing outpatient therapy episodes by the twenty most common primary diagnoses, there were important differences in the average number of treatment days and the average Medicare expenditures. Comparing episodes across setting types, the longest and most expensive outpatient therapy episodes (for all three therapy types) occurred in SNFs, CORFs, and ORFs.

1.4 Organization of this Report

This report is organized as follows. Section 2 of this report describes the dataset construction process. Section 3 presents the main results. This section is organized into subsections presenting CY2007 outpatient therapy utilization by patient demographics, provider characteristics, services provided, and patient diagnosis.

Accompanying this report is a set of Microsoft Excel workbooks providing more detail on utilization than are presented in this report. The figures and tables in this report use data drawn from these files, and file name references are provided in the source references for these figures and tables.

¹ HCPCS is a standardized coding system for claims processing used by Medicare and other insurers primarily to identify products, supplies, and services not included in the CPT codes. See <http://www.cms.hhs.gov/MedHCPCSGeninfo/>

SECTION 2 DATA ANALYSIS METHODOLOGY

2.1 Source of Data

For the figures and tables used in this report, and for the Excel tables that accompany this report, RTI used 100 percent of outpatient therapy claims from January 2007 through December 2007, as retrieved from CMS in December 2008. For a subset of the tables, the therapy claims were supplemented with information from the 2007 Medicare Denominator file. For outpatient therapy occurring in a facility, i.e., hospital, skilled nursing facility (SNF), comprehensive outpatient rehabilitation facility (CORF), outpatient rehabilitation facility (ORF), or home health agency (HHA), therapy claims come from the Outpatient file. For outpatient therapy occurring in a physician's office, i.e., physical therapist in private practice (PTPP), occupational therapist in private practice (OTPP), physician, and non-physician practitioner (NPP), therapy claims come from the Carrier file.

2.2 Dataset Description

Paid amounts and allowed charges are taken from the claims data. From the Medicare Non-Institutional Data, the Line NCH Payment Amount is used to calculate the paid amounts for the physician office settings (PTPP, OTPP, Physician, and NPP), and the Line Allowed Charge Amount is used for the allowed charges. The difference between the allowed charges and the paid amounts includes both the 20 percent coinsurance and the deductible (where applicable) paid by the Medicare beneficiary. From claims from institutional settings, the Revenue Center Payment Amount is used to calculate paid amounts for the facility settings (hospital, SNF, CORF, ORF, and HHA), and the allowed charges are the product of the Revenue Center Rate Amount and the Revenue Center Unit Amount. The difference between these values also takes into account both the 20 percent coinsurance and the deductible paid by the beneficiary.

However, this method of calculating allowed charges for institutional providers differs somewhat from the way previous reports have calculated allowed charges. Ciolek and Hwang (2006, 2008) estimated the allowed charges for the institutional settings by multiplying the paid amounts by a factor 1.25. This procedure assumes that the beneficiary pays no deductible, meaning that the paid amount on the claim is always 80 percent of the allowed charge, such that the difference between the allowed amount and the paid amount is the 20 percent coinsurance. Because this method does not include the beneficiary deductible, the allowed charges will be slightly underestimated. For this reason, RTI has chosen to use the information from the claims data as previously described. The allowed charges in this report and the accompanying tables, therefore, will be slightly higher than those that do not take the beneficiary deductibles into account, and will be a more accurate reflection of the actual amounts of payment that outpatient therapy providers are eligible to receive.

The outpatient therapy episodes described in the latter part of this report are constructed following the methodology outlined in the CSC report, *Development of a Model Episode-Based Payment System for Outpatient Therapy Services: Feasibility Analysis Using Existing CY2002 Claims Data* (Ciolek and Hwang, 2004). Each therapy episode begins with a beneficiary's first date of service for that type of therapy (PT, OT, or SLP) in the calendar year, or the first date of service that is preceded by a sixty-day period without any services of that therapy type. The

episode continues through the last date of service in the calendar year, or the last date of service that precedes a sixty-day period without any services of that therapy type. The number of days in an episode is calculated as the number of days in which the beneficiary actually received some type of therapy treatment, not the number of days between the first date of service and the last date of service. The primary diagnosis (ICD-9 code) on the first claim line of an episode is considered to be the primary diagnosis for the entire episode, regardless of whether subsequent claim lines in the episode have the same primary diagnosis. Likewise, the secondary diagnosis of the episode is the second diagnosis code listed on the first claim line of an episode.

**SECTION 3
CY2007 OUTPATIENT THERAPY UTILIZATION**

3.1 Outpatient Therapy Utilization – Overall Results

During CY2007 4,402,517 individuals received Physical Therapy (PT), Occupational Therapy (OT), or Speech Language Pathology (SLP) services, representing 12.3 percent of the 35,802,532 total Medicare Part B Enrollees. Physical therapy users (3,877,896) represented 10.8 percent of Part B Enrollees, while OT users (933,826) represented 2.6 percent and SLP users (455,248) represented 1.3 percent.

As detailed in Table 1, the total payment for all outpatient therapy in CY2007 was \$4,376,866,295. This is more than a \$270 million increase from CY2006. PT services (\$3,242,720,387) accounted for 74.1 percent of the total payments, while OT services (\$831,594,483) accounted for 19.0 percent and SLP services (\$302,551,425) accounted for 6.9 percent of total outpatient therapy payments. The largest fraction (88.1 percent) of therapy users received PT services, followed by OT with 21.2 percent of users and SLP with 10.3 percent of users. OT had the highest mean payments per user (\$891), followed by PT (\$836) and SLP (\$665). PT had the highest median payments per user (\$539), followed by OT (\$495) then SLP (\$347). OT also had the highest mean payment per episode (\$783), followed by PT (\$723) and SLP (\$597).

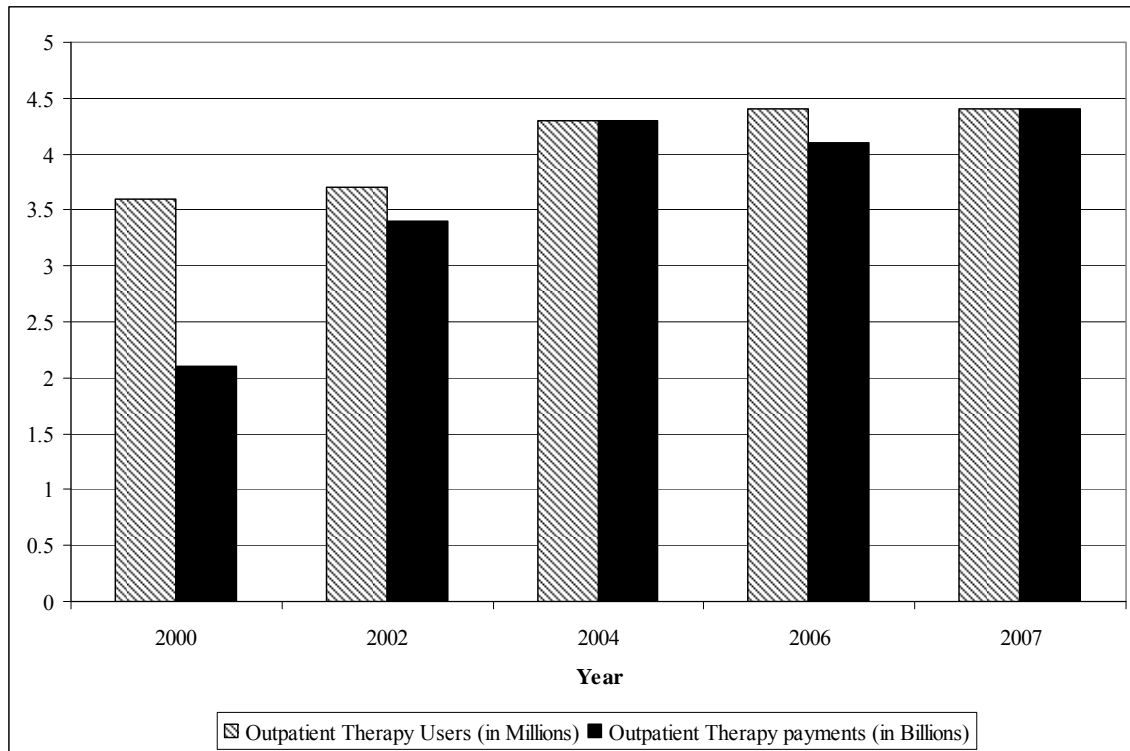
**Table 1
Summary of outpatient therapy expenditures CY2007**

CY 2007	Outpatient therapy users	Percent users	Total paid	Percent paid	Mean paid per User	Median paid per user	Mean paid per episode
Total	4,402,517	100.0%	\$4,376,866,295	100.0%	\$994	\$555	\$723
PT	3,877,896	88.1	3,242,720,387	74.1	836	539	723
OT	933,826	21.2	831,594,483	19.0	891	495	783
SLP	455,248	10.3	302,551,425	6.9	665	347	597

SOURCE: RTI International analysis of 2007 Medicare claims data for outpatient therapy services (See source files AnnualUserExpenditures_byTherapyType_1-100Percentile_CY2007.xls; OutpatientEpisodesbyDiagnosis_OT_CY2007.xls; OutpatientEpisodesbyDiagnosis_PT_CY2007.xls; OutpatientEpisodesbyDiagnosis_SLP_CY2007.xls; OutpatientTherapyDemographics_CY2007.xls).

Figure 1 shows that the total number of outpatient therapy users has increased steadily over the years. From CY2000 to CY2004, the expenditures for each discipline also increased, with PT and OT showing a higher rate of increase than SLP. In CY2006 the expenditures for all disciplines decreased by 3.9 percent from CY2004 levels. This decrease in expenditures was likely due to the therapy caps implemented by the Deficit Reduction Act of 2006.² In CY2007, expenditures increased by 6.6 percent to a level higher than CY2004. From CY2006 to CY2007, PT users increased by 0.4 percent while expenditures increased by 5.4 percent. During this time period OT users increased by 1.8 percent and SLP users increased by 2.2 percent. Expenditures for these two therapy types increased by 10.0 percent and 10.8 percent, respectively. From CY2006 to CY2007 there was a 4.9 percent increase in payment per episode for PT from \$689 to \$723, a 7.4 percent increase for OT from \$729 to \$783, and an 8.1 percent increase for SLP from \$552 to \$597. The changes in mean episode payments and increase in users explains most of the rise in expenditures for outpatient therapy. Less than 1 percent of the change remains unexplained by the number of users, episodes per user, and payments per episode.

Figure 1
Total outpatient therapy users and expenditure, CY2000-2007



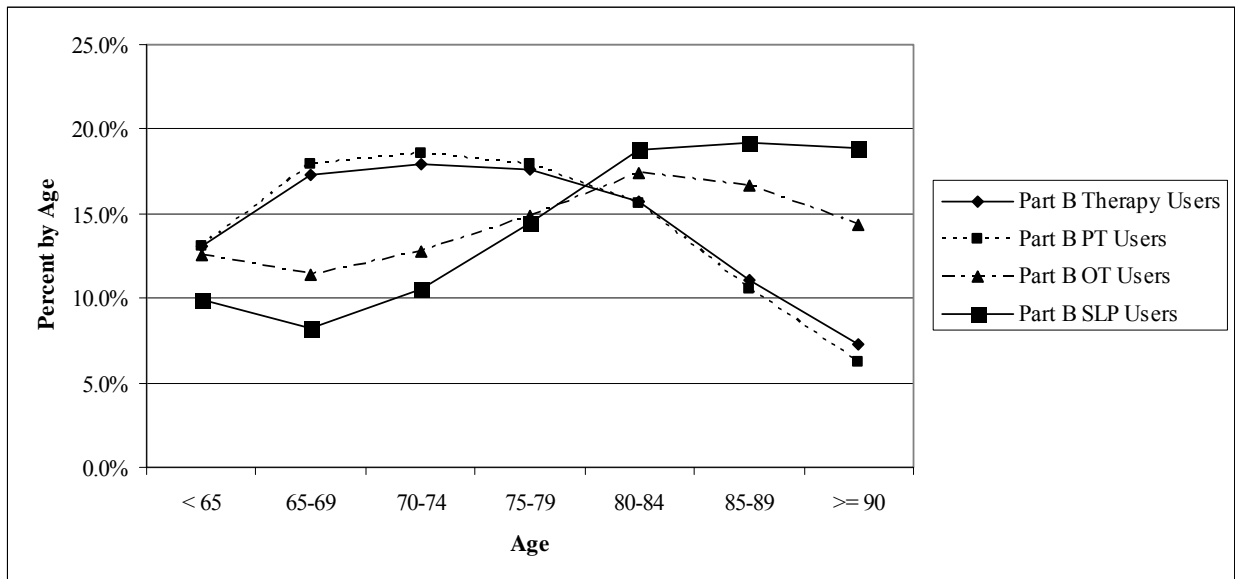
SOURCE: RTI International analysis of 2006 and 2007 Medicare claims data for outpatient therapy services and the Ciolek and Hwang (2008) *CY 2006 Outpatient Therapy Services Utilization Report* (See source files OutpatientTherapyDemographics_CY2006.xls; OutpatientTherapyDemographics_CY2007.xls).

² In 2006, the outpatient therapy allowed charges were capped at \$1740 for OT services and \$1740 for PT and SLP services combined. In 2007, the therapy caps for were \$1780 for OT services and \$1780 for PT/SLP services. Exemptions from the therapy caps were available based on the conditions and co-morbidities of the beneficiaries.

3.2 Outpatient Therapy Utilization by Beneficiary Age

The age distribution of outpatient therapy users varied by therapy discipline in CY2007, as shown in Figure 2. The largest age group of all therapy users was 70-74 years (18.0 percent), which was the same largest group for PT users (18.6 percent). PT users showed a steady rise in outpatient therapy use from ages younger than 65 to a peak at age 70-74 and then steadily declined through age 80-84. After this point the percentage of users in older age categories declined more steeply. For both OT and SLP, the proportion of therapy uses who were under 65 was larger than the proportion who were aged 65-69. After this point, the percentage of OT and SLP users in each age group rose until OT users peaked at ages 80-84 (17.4 percent) and SLP users peaked at ages 85-89 (19.2 percent). Users that were 90 or older utilized OT (14.4 percent) and SLP (18.8 percent) services more than PT users (6.3 percent).

Figure 2
CY2007 outpatient therapy user age distribution



SOURCE: RTI International analysis of 2007 Medicare claims data for outpatient therapy services (See source file OutpatientTherapyDemographics_CY2007.xls).

Expenditures per user based on age group varied as well, as shown in Table 2. Annual therapy expenditures per user rose steadily across age groups, beginning at \$877 per user for those under age 65, with a small dip to \$869 per user aged 65-69, and increasing to \$1,295 per user for those ages 90 or over. This pattern is true for PT, with the minimum annual expenditure per user of \$743 for those under 65 and a maximum annual expenditure of \$934 for those ages 90 or over, compared to the mean of \$836 for that discipline. The low for OT services was \$811 for ages 65-69 and the high was \$944 for ages 85 to 89, while the mean was \$891. Expenditures per user for SLP were at a minimum of \$585 for those under 65, peaked at \$706 for those aged 85-89, and the mean was \$665.

Table 2
CY2007 outpatient therapy annual per user expenditures by age

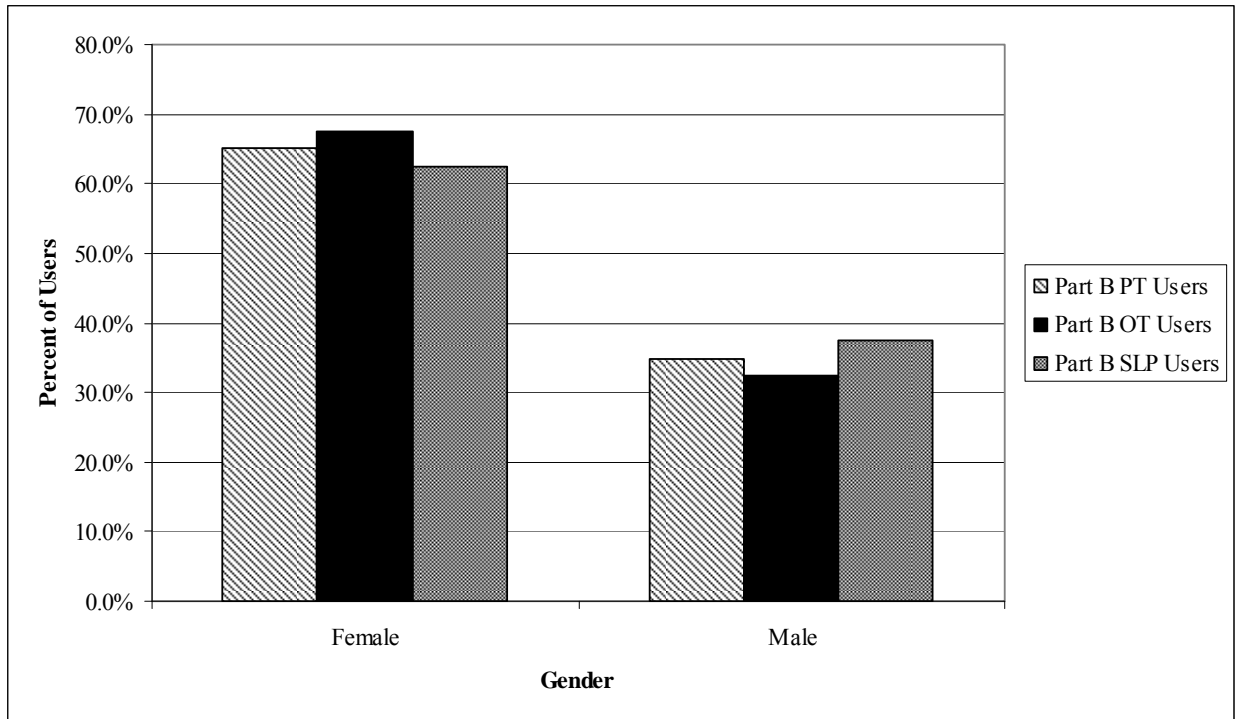
Age	Number of therapy users	Annual therapy expenditures per user	Annual PT expenditures per PT user	Annual OT expenditures per OT user	Annual SLP expenditures per SLP user
Total	4,402,517	\$994	\$836	\$891	\$665
< 65	578,102	877	743	875	585
65-69	760,094	869	794	811	596
70-74	790,897	922	830	849	617
75-79	776,348	975	849	872	655
80-84	692,050	1,060	870	915	688
85-89	486,813	1,185	905	944	706
≥ 90	318,232	1,295	934	931	705

SOURCE: RTI International analysis of 2007 Medicare claims data for outpatient therapy services (See source file OutpatientTherapyDemographics_CY2007.xls).

3.3 Outpatient Therapy Utilization by Beneficiary Gender

The majority of outpatient therapy users were women, regardless of discipline, as shown in Figure 3. The proportion of users who are female varies by discipline, but is fairly close to two-thirds. In CY2007, women made up 65.2 percent of PT users, 67.5 percent of OT users, and 62.6 percent of SLP users. These figures varied greatly from the total population enrolled in Medicare Part B. Women accounted for 56.3 percent of enrollees, while men accounted for 43.7 percent.

Figure 3
CY2007 outpatient therapy users



SOURCE: RTI International analysis of 2007 Medicare claims data for outpatient therapy services (See source file OutpatientTherapyDemographics_CY2007.xls).

3.4 Outpatient Therapy Utilization by State

Outpatient therapy use and spending varied by geographic location. Table 3 shows that five states accounted for 34.2 percent of all outpatient therapy users. Florida led with 8.6 percent of all therapy users residing, followed by California (8.4 percent), New York (7.0 percent), Texas (5.5 percent), and Illinois (4.7 percent). States with the lowest percentage of users were Alaska (0.1 percent), Wyoming (0.2 percent), Hawaii, North Dakota, Vermont, Rhode Island, and South Dakota (0.3 percent). These values can be compared with the percent of Medicare beneficiaries in the state by examining the odds ratio (OR). An odds ratio greater than 1 indicates that there are disproportionately more outpatient therapy users in a state relative to the number of Part B beneficiaries. Of the states described above, North Dakota, Vermont, Illinois, New York, California, and Florida have an OR greater than 1, and therefore have disproportionately more outpatient therapy users than beneficiaries. The rank of states by the percentage of therapy users is also presented in Table 3, with “1” signifying the state with the lowest percentage of outpatient therapy users and “50” signifying the state with the highest percentage of outpatient therapy users.

Table 3
CY2007 outpatient therapy utilization—states with the least and greatest proportions of users
of outpatient therapy services, by discipline

State and rank by users of all outpatient therapy	% of all outpatient therapy users	% of Medicare benes	Odds ratio of users to beneficiaries	State and rank by users of outpatient PT	% of outpatient PT users	% of Medicare benes	Odds ratio of users to beneficiaries	State and rank by users of outpatient OT	% of outpatient OT users	% of Medicare benes	Odds ratio of users to beneficiaries	State and rank by users of outpatient SLP	% of outpatient SLP users	% of Medicare benes	Odds ratio of users to beneficiaries
1. AK	0.1%	0.2%	0.50	1. AK	0.1%	0.2%	0.67	1. AK	0.1%	0.2%	0.67	1. AK	0.1%	0.2%	0.67
2. WY	0.2	0.2	1.00	2. WY	0.2	0.2	1.00	2. HI	0.2	0.3	0.61	2. HI	0.2	0.3	0.61
3. HI	0.3	0.3	0.91	3. HI	0.3	0.3	0.91	3. WY	0.3	0.2	1.50	2. WY	0.2	0.2	1.00
3. ND	0.3	0.3	1.07	3. ND	0.3	0.3	1.07	3. VT	0.3	0.3	1.11	3. ND	0.3	0.3	1.07
3. VT	0.3	0.3	1.11	3. VT	0.3	0.3	1.11	3. SD	0.3	0.4	0.86	3. VT	0.3	0.3	1.11
3. RI	0.3	0.3	1.00	3. RI	0.3	0.3	1.00	3. DE	0.3	0.4	0.83	3. MT	0.3	0.4	0.73
3. SD	0.3	0.4	0.86	3. SD	0.3	0.4	0.86	3. ID	0.3	0.5	0.62	3. SD	0.3	0.4	0.86
46. IL	4.7	4.4	1.07	46. IL	4.7	4.4	1.07	3. MT	0.3	0.4	0.73	3. DE	0.3	0.4	0.83
47. TX	5.5	6.6	0.82	47. TX	5.5	6.6	0.82	46. OH	5.8	4.3	1.39	46. OH	6.0	4.3	1.44
48. NY	7.0	6.0	1.18	48. NY	7.3	6.0	1.24	47. PA	6.0	4.1	1.49	47. PA	6.4	4.1	1.6
49. CA	8.4	7.9	1.07	49. FL	8.7	6.8	1.31	47. TX	6.0	6.6	0.90	47. TX	6.4	6.6	0.96
50. FL	8.6	6.8	1.29	50. CA	8.8	7.9	1.13	47. CA	6.0	7.9	0.75	49. CA	6.5	7.9	0.81
–	–	–	–	–	–	–	–	50. FL	10.4	6.8	1.59	50. FL	7.5	6.8	1.11

SOURCE: RTI International analysis of 2007 Medicare claims data for outpatient therapy services (See source file OutpatientTherapyDemographics_CY2007.xls).

Table 3 presents the states with the largest and smallest percentage of therapy users by discipline as well. For PT services, 35.0 percent of users lived in five states. The largest percentage resided in California, with 8.8 percent of PT users. Florida followed with 8.7 percent, then New York (7.3 percent), Texas (5.5 percent), and Illinois (4.7 percent). The lowest percentages of PT users resided in Alaska (0.1 percent), Wyoming (0.2 percent), Hawaii, North Dakota, Vermont, Rhode Island, and South Dakota (0.3 percent). States with a disproportionate number of PT users relative to the number of Part B therapy beneficiaries were North Dakota, Vermont, Illinois, New York, Florida, and California.

For OT services, 34.2 percent of users resided in five states. The largest percentage resided in Florida, with 10.4 percent of OT users, followed by Pennsylvania, Texas, California (6.0 percent each), and Ohio (5.8 percent). Eight states served the smallest percentages of OT users. Alaska had the smallest percentage at 0.1 percent, followed by Hawaii, Wyoming (0.2 percent each), Vermont, South Dakota, Delaware, Idaho, and Montana (0.3 percent each). States with a disproportionate number of OT users relative to the number of Part B therapy beneficiaries were Wyoming, Vermont, Ohio, Pennsylvania, and Florida.

For SLP services, 32.8 percent of all users lived in five states. The largest percentage resided in Florida, with 7.5 percent of all SLP users, followed by California (6.5 percent), Pennsylvania, Texas (6.4 percent each), and Ohio (6.0 percent). The lowest percentage of SLP users resided in Alaska (0.1 percent), followed by Hawaii, Wyoming (0.2 percent each), North Dakota, Vermont, Montana, South Dakota, and Delaware (0.3 percent each). States with a disproportionate number of SLP users were North Dakota, Vermont, Ohio, Pennsylvania, and Florida.

Table 4 presents the most and least costly states for all outpatient therapy services. Florida had the highest payments for outpatient therapy in CY2007 (\$527,283,697), followed by California (\$394,992,353), New York (\$332,228,153), Texas (\$254,196,358), and Pennsylvania (\$219,175,550). Alaska had the lowest costs at \$3,920,453 for CY2007, followed by North Dakota (\$5,736,440), Wyoming (\$8,043,145), Vermont (\$9,572,297), and South Dakota (\$9,718,603).

The mean annual expenditure per PT user varied among states. A different set of states from those that had the most and least amount of PT users were the most and least costly, as shown in Table 5. New Jersey led with an annual expenditure per user of \$1,083, followed by Florida (\$1,061), New York (\$1,054), Maryland (\$985), and California (\$962). The lowest expenditures were in North Dakota (\$378), Minnesota (\$483), Iowa (\$497), Oregon (\$565), and Wisconsin (\$569).

Table 4
CY2007 outpatient therapy utilization–least/most costly states

Status	State	Total paid all therapy types
Least costly	AK	\$3,920,453
2 nd	ND	5,736,440
3 rd	WY	8,043,145
4 th	VT	9,572,297
5 th	SD	9,718,603
46 th	PA	219,175,550
47 th	TX	254,196,358
48 th	NY	332,228,153
49 th	CA	394,992,353
Most costly	FL	527,283,697

SOURCE: RTI International analysis of 2007 Medicare claims data for outpatient therapy services (See source file OutpatientTherapyDemographics_CY2007.xls).

Table 5
CY2007 outpatient therapy utilization–most and least costly states by discipline

Status	PT state	PT mean paid	OT state	OT mean paid	SLP state	SLP mean paid
Least costly	ND	\$378	ND	\$338	IA	\$337
2 nd	MN	483	IA	402	NY	359
3 rd	IA	497	OR	465	SD	377
4 th	OR	565	MT	466	ND	391
5 th	WI	569	MN	480	MN	426
46 th	CA	962	WV	1,032	AL	787
47 th	MD	985	TX	1,038	TX	835
48 th	NY	1,054	LA	1,178	WV	873
49 th	FL	1,061	MS	1,337	LA	1,021
Most costly	NJ	1,083	FL	1,477	MS	1,254

SOURCE: RTI International analysis of 2007 Medicare claims data for outpatient therapy services (See source file OutpatientTherapyDemographics_CY2007.xls).

The highest and lowest mean annual expenditures per OT user occurred in a different group of states from those listed as high and low therapy users. Florida had the highest mean annual expenditure per OT user at \$1,477, followed by Mississippi (\$1,337), Louisiana (\$1,178), Texas (\$1,038), and West Virginia (\$1,032). The lowest payments were in North Dakota (\$338), followed by Iowa (\$402), Oregon (\$465), Montana (\$466), and Minnesota (\$480).

Again, the groups of states with the top five highest and lowest mean annual expenditures per SLP user were different from the groups of highest and lowest percentage of therapy users. Mississippi led with a mean annual expenditure per SLP user of \$1,254, followed by Louisiana (\$1,021), West Virginia (\$873), Texas (\$835), and Alabama (\$787). The lowest mean annual expenditure per SLP user was in Iowa (\$337) followed by New York (\$359), South Dakota (\$377), North Dakota (\$391), and Minnesota (\$426).

Possible explanations for the difference in mean annual expenditures per user among states include:

- The number of providers in each discipline
- Casemix of the state populations
- Differing practice patterns

Table 6 details the number of providers in the states with the lowest and highest mean annual expenditures per user. States with higher mean annual expenditures for PT have a slight tendency to have a higher number of PT providers per 1,000 Part B enrollees, between 2.07 and 5.73. In comparison, states with the lowest PT expenditures had between 0.28 and 2.80 PT providers per 1,000 Part B enrollees. Of the PT providers available in high expenditure states, there were more hospitals, SNFs, and physicians, on average. For example, states with the highest PT expenditures had between 404 and 2,760 physician offices providing PT services, whereas states with the lowest expenditures had between 15 and 390 physician offices.

In contrast, there seems to be no relationship between the number of providers per 1,000 Part B enrollees for OT and SLP services. This may be due to the fact that OT and SLP providers are more likely to be SNFs, CORFs, and hospital outpatient departments than for PT providers (this is especially true for SLP providers). Because SNFs, CORFs, and hospital outpatient departments are much more heterogeneous in their patient treatment capacity than individual clinician providers, the relationship between utilization and the number of providers would be expected to be less strong for OT and, especially, SLP services. However, for SLP services, high expenditure states tended to have more SNFs that provided SLP services, and low expenditure states tended to have more physician offices that provided SLP services. It is unclear whether this is due to substitution in site of care or instead due to patient case mix differences. However, as Table 6 shows, state-to-state variation in Medicare outpatient therapy utilization is likely driven by factors other than the availability of providers.

Table 6
Number of providers in states with the lowest and highest mean annual expenditures per user

Status	PT state	PT: number of providers per 1,000 Part B enrollees	OT state	OT: number of providers per 1,000 Part B enrollees	SLP state	SLP: number of providers per 1,000 Part B enrollees
Least costly	ND	1.71	ND	0.50	IA	0.02
2 nd	MN	0.28	IA	0.18	NY	0.07
3 rd	IA	1.20	OR	0.32	SD	0.02
4 th	OR	2.80	MT	0.32	ND	0.09
5 th	WI	2.08	MN	0.74	MN	0.19
46 th	CA	1.08	WV	0.29	AL	0.02
47 th	MD	5.73	TX	0.32	TX	0.05
48 th	NY	3.10	LA	0.42	WV	0.04
49 th	FL	2.07	MS	0.29	LA	0.04
Most costly	NJ	2.62	FL	0.54	MS	0.08

SOURCE: RTI International analysis of 2007 Medicare claims data for outpatient therapy services (See source file OutpatientTherapyProviders_byState_CY2007.xls).

3.5 Outpatient Therapy Utilization by Provider Setting

The overall number of outpatient therapy providers increased from 93,278 in CY2004 to 97,623 in CY2007, however the trends have varied depending on the particular setting. Table 7 details these trends. The percentage change in providers of outpatient therapy services has been negative for hospitals (-8.4 percent), CORFs (-25.1 percent), ORFs (-6.6 percent), HHAs (-6.5 percent), physicians (-21.2 percent), and NPPs (-21.1 percent). Settings that have increased the number of providers of outpatient therapy services include SNFs (1.4 percent), PTPPs (31.7 percent), and OTPPs (36.6 percent). PTPPs (44,380), physicians (25,392), and SNFs (14,281) had the largest number of providers in CY2007. The lowest numbers of providers were those who practiced in HHAs (227), followed by CORFs (459), and NPPs (704).

Table 8 presents the amount paid for outpatient therapy based on setting. SNFs received the largest percentage of paid dollars with 31.6 percent and had the third highest amount paid per line (\$33.03). Hospitals received the largest amount per line (\$34.77), but only accounted for 17.5 percent of all paid dollars. NPPs had the lowest amount paid per line (\$24.59) and accounted for less than 0.1 percent of paid dollars. The differences in payments per claim line are driven by the mix of services provided across the different settings.

Table 7
Number of outpatient therapy providers, CY2004 to CY2007

Outpatient therapy setting	Providers in CY2004	Providers in CY2007	Percent change CY2004-2007
Hospital	5,326	4,879	-8.4%
SNF	14,088	14,281	1.4
CORF	613	459	-25.1
ORF	2,569	2,399	-6.6
HHA	272	227	-16.5
PTPP	33,704	44,380	31.7
OTPP	3,790	5,179	36.6
Physician	32,205	25,392	-21.2
NPP	892	704	-21.1

SOURCE: RTI International analysis of 2007 Medicare claims data for outpatient therapy services (See source file NumberOutpatientTherapyProviders_CY2007.xls).

Table 8
CY2007 outpatient therapy expenditures by setting

Setting	Claim lines	Paid	Percent of paid dollars	Paid per line
All	140,634,124	\$4,376,866,295	100.0%	\$31.12
Hospital	22,066,160	767,214,932	17.5	34.77
SNF	41,919,516	1,384,510,150	31.6	33.03
CORF	4,764,537	127,270,223	2.9	26.71
ORF	17,595,266	522,738,267	11.9	29.71
HHA	70,269	2,267,251	0.1	32.27
PTPP	42,000,657	1,241,335,610	28.4	29.56
OTPP	2,271,450	75,871,554	1.7	33.40
Physician	9,859,356	253,521,101	5.8	25.71
NPP	86,913	2,137,208	0.0	24.59

SOURCE: RTI International analysis of 2007 Medicare claims data for outpatient therapy services (See source file HCPCS_UtilizationSummary_by Setting_all_CY2007.xls).

Total annual expenditures in each setting varied primarily as a result of the number of claim lines. The total number of claim lines for all settings in CY2007 was 140,634,124. The setting with the most outpatient therapy claims was PTPP (42,000,657), followed by SNFs (41,919,516) and Hospitals (22,066,160). The lowest numbers of outpatient therapy claims were in HHAs (70,269) and NPPs (86,913).

Table 9 presents selected demographics of the outpatient therapy population by setting along with mean and median allowed charges and paid amounts. Of the therapy settings, PTPPs had the most Part B therapy users with 1,425,690, followed by Hospitals (1,417,396) and SNFs (804,154). The lowest numbers of users were in HHAs (4,430), NPPs (6,205), and CORFs (64,543). Females were the largest percentage of users in each outpatient therapy setting, with the highest percentage in SNFs (70.8 percent). The mean age of users varied from 71.2 to 82.0 years depending on the provider setting. NPPs had the lowest mean age of 71.2 and SNFs had the highest mean age of 82.0. CORFs had the highest mean payments per outpatient therapy user with \$1,972, compared to the mean payment for FIs of \$1,041. The lowest mean payment per user was \$512 in HHAs, also an FI. The mean payment for Carriers was \$824. Of Carriers, PTPPs had the highest mean payments (\$871) and NPPs had the lowest (\$344). The mean allowed payment was \$1,308 for FIs and \$1,034 for Carriers. CORFs had the highest mean allowed at \$2,475, while HHAs had the lowest at \$643.

Table 9
CY2007 therapy demographics by provider setting

Therapy setting	Part B therapy users	Percent female	Percent male	Mean age	Median age	Mean paid	Mean allowed	Median paid	Median allowed
Total	4,402,517	65.30%	34.80%	74.1	75	\$994	\$1,249	\$555	\$699
Hospital	1,417,396	63.40	36.60	72.1	74	541	682	312	395
SNF	804,154	70.80	29.20	82.0	84	1,722	2,162	981	1,237
CORF	64,543	63.00	37.00	72.1	74	1,972	2,475	1,029	1,295
ORF	507,669	64.90	35.10	73.4	74	1,030	1,295	650	818
HHA	4,430	65.20	34.80	77.5	79	512	643	239	303
PTPP	1,425,690	64.60	35.40	72.7	73	871	1,092	597	750
OTPP	111,442	66.70	33.30	73.0	74	681	854	361	454
Physician	486,030	64.30	35.80	72.0	73	522	654	238	300
NPP	6,205	66.80	33.20	71.2	72	344	432	81	102

SOURCE: RTI International analysis of 2007 Medicare claims data for outpatient therapy services (See source file OutpatientTherapyDemographics_bySetting_CY2007.xls).

3.6 Outpatient Therapy Utilization by Therapy Discipline and Provider Setting

Overall, PT accounted for 74.1 percent of Medicare therapy payments, while OT accounted for 19 percent, and the remaining 6.9 percent of payments were for SLP services (see Table 10). All three types of therapy (PT, OT, and SLP) were provided in almost all of the nine outpatient therapy settings. The primary exceptions were PTPP and OTPP, which only provided PT and OT services, respectively. However, the relative provision of services by each therapy discipline varied across the different settings. PT procedures were responsible for more than 62 percent of payments across all settings, with the exception of SNFs, where PT procedures were less than half of all payments, and OTPPs. The proportion of payments made for SLP services was the largest in SNFs, with 16.8 percent, followed by Hospitals with 6.8 percent and HHAs with 5.4 percent. CORFs had the highest proportion of payments for OT services, with 36.8 percent, and OT procedures were also a high percentage of SNF payments at 35.5 percent.

Table 10
CY2007 outpatient therapy expenditures by therapy discipline

Setting	PT paid	OT paid	SLP paid	Percent PT	Percent OT	Percent SLP
All	\$3,242,720,387	\$831,594,483	\$302,551,425	74.1%	19.0%	6.9%
Hospital	604,359,757	110,546,060	52,309,115	78.8	14.4	6.8
SNF	660,123,557	491,450,275	232,936,318	47.7	35.5	16.8
CORF	78,940,231	46,889,670	1,440,323	62.0	36.8	1.1
ORF	417,045,963	92,801,125	12,891,180	79.8	17.8	2.5
HHA	1,788,414	357,252	121,585	78.9	15.8	5.4
PTPP	1,241,335,610	0	0	100.0	0.0	0.0
OTPP	0	75,871,554	0	0.0	100.0	0.0
Physician	237,113,044	13,572,284	2,835,773	93.5	5.4	1.1
NPP	2,013,813	106,265	17,130	94.2	5.0	0.8

SOURCE: RTI International analysis of 2007 Medicare claims data for outpatient therapy services (See source files HCPCS_UnitsperLine_bySetting_PT_CY2007.xls; HCPCS_UnitsperLine_bySetting_OT_CY2007.xls; HCPCS_UnitsperLine_bySetting_SLP_CY2007.xls).

Most Medicare beneficiaries were receiving, outpatient therapy from only one discipline in a year. In the entire population of outpatient therapy users, 81.4 percent were receiving services from only one therapy discipline in CY2007 (with most of these receiving PT), but 18.6 percent were receiving services from two or more disciplines, as shown in Table 11. Not surprisingly, SNF patients were the most likely to have received services from two (34.8 percent) or three (13.2 percent) disciplines, and the least likely (after OTPP) to have only PT services. Also not surprisingly, CORFs also had a high rate of providing services by multiple disciplines, with 34.8 percent of therapy patients receiving services from two therapy disciplines.

Table 11
CY2007 provision of services by multiple therapy disciplines per setting

Setting	Number of outpatient therapy users	Percent receiving PT only	Percent receiving OT only	Percent receiving SLP only	Percent receiving services from two disciplines	Percent receiving services from all three disciplines
Total	4,402,517	72.6%	5.9%	2.9%	15.2%	3.4%
Hospital	1,417,396	72.0	5.7	2.6	17.7	2.1
SNF	804,154	27.3	11.3	11.2	37.0	13.2
CORF	64,543	59.2	4.2	1.1	34.8	0.8
ORF	507,669	82.4	5.1	1.1	10.1	1.3
HHA	4,430	76.0	9.3	3.6	9.8	1.4
PTPP	1,425,690	100.0	0.0	0.0	0.0	0.0
OTPP	111,442	0.0	100.0	0.0	0.0	0.0
Physician	486,030	89.5	5.0	2.8	2.6	0.0
NPP	6,205	90.0	5.4	1.7	2.9	0.0

SOURCE: RTI International analysis of 2007 Medicare claims data for outpatient therapy services (See source file OutpatientTherapyEpisodes_TherapiesbySetting_CY2007.xls).

3.7 Outpatient Therapy Services Provided

In CY2007, there were over 140 million outpatient therapy claim lines filed, leading to Medicare payments of over \$4.37 billion. Even though there were over 70 different HCPCS that could receive Medicare Part B payments as outpatient therapy, just 15 HCPCS codes represented 94.2 percent of all therapy claim lines and 94.2 percent of all therapy payments. The frequencies and payment amounts for the top 15 HCPCS are presented in Table 12, while Table 13 gives the descriptions of the HCPCS codes and their relative importance within each of the three therapy types. The most prominent HCPCS code, in terms of both frequency and payments, was 97110 (Therapeutic Exercises), which accounted for one third of all claim lines and over 40 percent of all payments.

As shown in Table 13, some of the top 15 HCPCS codes were seen across all three therapy types, and some were applicable only to one or two therapy types. For example, HCPCS code 97110 made up a large portion of both PT and OT claims lines, but was only 1.6 percent of SLP claim lines. The codes 92526 (Oral function therapy) and 92507 (Speech/hearing therapy) were almost exclusively used for speech language pathology, while 97535 (Self care management training) was primarily an OT procedure.

Table 12
15 most frequent CY2007 outpatient therapy HCPCS codes

HCPCS code	Total claim lines	Mean paid per claim line	Mean allowed per claim line	Total paid all claim lines	Total allowed all claim lines	Percent of total claim lines	Percent of total paid
TOTAL	140,634,124	\$31.12	\$39.10	\$4,376,866,295	\$5,498,440,022	100.0	100.0
97110	46,386,420	37.93	47.63	1,759,271,281	2,209,266,754	33.0	40.2
97140	16,031,450	26.55	33.34	425,710,792	534,452,155	11.4	9.7
97530	14,494,816	33.92	42.57	491,732,404	617,052,759	10.3	11.2
97112	11,205,850	28.74	36.05	322,084,089	404,021,306	8.0	7.4
97116	8,810,086	22.23	27.90	195,806,622	245,777,231	6.3	4.5
G0283	8,791,307	8.93	11.21	78,533,423	98,512,629	6.3	1.8
97035	7,291,853	9.47	11.88	69,043,276	86,648,135	5.2	1.6
97535	4,405,151	35.51	44.57	156,431,400	196,322,073	3.1	3.6
97001	4,004,796	55.96	70.86	224,120,501	283,784,437	2.9	5.1
97032	2,952,621	14.90	18.68	43,999,700	55,153,710	2.1	1.0
92526	2,556,302	63.91	80.33	163,379,657	205,339,096	1.8	3.7
97150	1,724,302	13.91	17.47	23,977,714	30,125,537	1.2	0.6
97124	1,372,090	20.44	25.65	28,050,894	35,198,868	1.0	0.6
92507	1,315,917	49.06	61.65	64,564,664	81,122,467	0.9	1.5
97113	1,150,895	65.43	82.20	75,299,551	94,598,784	0.8	1.7

SOURCE: RTI International analysis of 2007 Medicare claims data for outpatient therapy services (See source file HCPCS_UtilizationSummary_bySetting_all_CY2007.xls).

Table 13
Frequencies of the 15 most frequent CY2007 outpatient therapy HCPCS codes

HCPCS Code	Procedure Description	PT Percent	OT Percent	SLP Percent
97110	Therapeutic exercises	35.0	30.5	1.6
97140	Manual therapy	13.0	6.6	>0.1
97530	Therapeutic activities	8.8	19.0	0.6
97112	Neuromuscular reeducation	8.0	9.2	0.4
97116	Gait training therapy	7.9	0.1	>0.1
G0283	Electrical stimulation other than wound	7.3	2.7	>0.1
97035	Ultrasound therapy	6.0	2.6	>0.1
97535	Self care management training	0.5	15.3	0.2
97001	Physical therapy evaluation	3.6	>0.1	>0.1
97032	Electrical stimulation	2.4	1.1	0.1
92526	Oral function therapy	>0.1	>0.1	50.8
97150	Group therapeutic procedures	1.4	0.8	0.1
97124	Massage therapy	1.1	0.5	>0.1
92507	Speech/hearing therapy	>0.1	>0.1	26.1
97113	Aquatic therapy/exercises	1.0	>0.1	0.0

SOURCE: RTI International analysis of 2007 Medicare claims data for outpatient therapy services (See source files HCPCS_UnitsperLine_bySetting_OT_CY2007.xls; HCPCS_UnitsperLine_bySetting_PT_CY2007.xls; HCPCS_UnitsperLine_bySetting_SLP_CY2007.xls).

Among the different outpatient therapy settings, there was considerable variation in the frequencies of the 15 most common HCPCS codes, as seen in Table 14. HCPCS codes 97110 (Therapeutic exercise) made up more than 25 percent of claim lines across all settings, but 97112 (Neuromuscular reeducation) and 97116 (Gait training therapy) made up at least 10.0 percent of claim lines only in SNF and HHA settings. The primarily SLP codes 92526 and 92507 made up a larger share of SNF and Hospital claims than any other settings.

Table 14
Percent of claim lines by setting of 15 most frequent CY2007 outpatient therapy HCPCS codes

Procedure description	HCPCS code	Percent of claim lines	Hospital	SNF	CORF	ORF	HHA	PTPP	OTPP	Physician	NPP
Therapeutic exercises	97110	33.0	39.8	30.6	24.0	31.5	34.2	34.7	32.6	27.6	23.3
Manual therapy	97140	11.4	11.9	0.9	16.7	15.1	4.2	18.6	15.5	14.1	12.8
Therapeutic activities	97530	10.3	4.9	17.4	13.4	10.2	11.8	6.7	12.7	5.7	6.9
Neuromuscular reeducation	97112	8.0	3.9	11.5	7.4	7.2	10.0	7.3	5.9	7.0	6.0
Gait training therapy	97116	6.3	4.2	13.2	6.5	5.4	16.7	2.4	0.2	0.8	3.3
Electrical stimulation other than wound	G0283	6.3	5.7	1.4	10.3	8.1	0.6	9.7	3.6	9.2	8.8
Ultrasound therapy	97035	5.2	5.6	1.0	5.7	5.8	3.3	7.6	6.1	10.6	8.1
Self care management training	97535	3.1	1.3	6.5	7.1	3.3	4.6	0.6	6.6	0.7	1.8
Physical therapy evaluation	97001	2.9	5.5	1.6	1.5	2.8	5.1	3.3	0.1	2.0	0.8
Electrical stimulation	97032	2.1	0.9	0.5	3.0	1.4	0.7	2.8	2.2	9.4	11.0
Oral function therapy	92526	1.8	0.7	5.6	0.2	0.4	0.5	>0.1	>0.1	0.1	>0.1
Group therapeutic procedures	97150	1.2	2.7	0.6	0.3	2.0	0.1	1.0	0.4	0.7	1.2
Massage therapy	97124	1.0	0.8	0.2	0.7	0.8	1.7	1.0	1.4	4.7	3.7
Speech/hearing therapy	92507	0.9	1.9	1.9	0.3	0.5	1.6	>0.1	0.1	0.2	0.2
Aquatic therapy/exercises	97113	0.8	2.0	>0.1	0.4	1.1	>0.1	1.1	0.1	0.3	0.2

SOURCE: RTI International analysis of 2007 Medicare claims data for outpatient therapy services (See source file HCPCS_UtilizationSummary_bySetting_all_CY2007.xls).

Similarly, the proportion of total payments for each of the top 15 HCPCS codes varied across settings (see Table 15). The HCPCS code 97110 accounted for the largest fraction of payments in all settings; but 97140 was the second largest for Hospital, ORF, PTPP, and NPP settings, while 97530 was the second largest in terms of payments for SNFs, CORFs, and OTPPs with 97116 the second largest in HHAs. SNFs had the highest fraction of payments coming from the SLP procedure code 92526 with 10.8 percent. Hospitals, SNFs, and HHAs received around 2.7 percent of their revenues each for the other SLP procedure code among the most frequent, 92507.

3.8 Outpatient Therapy Utilization by Principal Claim Diagnosis

There were 6,817 different ICD-9 codes present on the first claims of the almost 4.5 million PT episodes in CY2007. However, 97 percent of these principal claim diagnoses represented less than 0.1 percent of PT episodes each. The twenty most common diagnoses accounted for 54.4 percent of PT episodes, as shown in Table 16, and 80 percent of the episodes fell into the top 200 PT diagnoses. There was considerable variation in episode length, payments, and number of claim lines when comparing across ICD-9 codes.

Almost all (96 percent) of PT episodes took place in a single type of care setting. Descriptive information on PT episodes of care is presented in Table 17. Physical therapists in private practice (PTPP) were responsible for the largest fraction of single-setting PT episodes (34.1 percent), followed by hospitals with 27.6 percent, and SNFs with 15.3 percent. Overall, the most frequent initial diagnosis for PT episodes was V57.1 (Care Involving Other Physical Therapy), but in ORF, PTPP, physician, and NPP settings, the most common diagnosis was 724.2 (Lumbago). PT episodes that occurred in SNFs were the longest with an average of 16 treatment days, followed by CORFs with 12 treatment days. These were also the sites for the most expensive episodes, with average Medicare payments of \$1,043 for CORF episodes and \$961 for SNF episodes.

For OT episodes in CY2007, the top twenty principal diagnoses represented 41.2 percent of all episodes, as shown in Table 18. Almost 82 percent of OT episodes could be categorized by one of the top 200 out of 5,759 OT diagnoses. Note that OT episodes had higher payments compared to PT episodes, \$783 compared to \$723. OT episodes also had higher payments in 2004, when OT episodes received \$777 in mean payments versus \$748 in mean payments for PT episodes.

Table 15
Percent of payments by setting of 15 most frequent CY2007 outpatient therapy HCPCS codes

Procedure description	HCPCS code	Percent of total paid	Hospital	SNF	CORF	ORF	HHA	PTPP	OTPP	Physician	NPP
Therapeutic exercises	97110	40.2	46.7	30.4	35.4	42.1	38.4	47.3	38.6	38.6	35.6
Manual therapy	97140	9.7	9.6	0.8	14.6	12.3	3.7	17.0	13.9	14.5	12.5
Therapeutic activities	97530	11.2	5.4	17.2	15.1	11.7	11.4	8.1	15.7	7.4	8.8
Neuromuscular reeducation	97112	7.4	3.9	9.6	7.1	6.8	8.8	7.0	5.9	9.0	6.6
Gait training therapy	97116	4.5	3.0	8.8	5.1	3.9	12.1	1.8	0.2	0.7	2.6
Electrical stimulation other than wound	G0283	1.8	1.4	0.4	3.5	2.4	0.2	2.9	1.0	3.4	2.8
Ultrasound therapy	97035	1.6	1.5	0.3	2.0	1.8	1.0	2.4	1.7	4.2	3.3
Self care management training	97535	3.6	1.4	7.4	7.2	3.7	5.4	0.5	8.3	0.9	3.2
Physical therapy evaluation	97001	5.1	9.0	2.6	3.1	5.2	8.3	6.2	0.1	4.4	1.5
Electrical stimulation	97032	1.0	0.3	0.3	1.4	0.6	0.3	1.2	0.9	6.5	11.3
Oral function therapy	92526	3.7	1.2	10.8	0.4	0.8	1.0	>0.1	>0.1	0.1	>0.1
Group therapeutic procedures	97150	0.6	1.1	0.3	0.1	0.9	>0.1	0.5	0.2	0.4	0.6
Massage therapy	97124	0.6	0.4	0.1	0.5	0.5	0.9	0.7	1.0	4.2	3.3
Speech/hearing therapy	92507	1.5	2.7	2.7	0.5	1.0	2.8	>0.1	0.1	0.3	0.5
Aquatic therapy/exercises	97113	1.7	3.5	0.1	1.0	2.5	0.1	2.5	0.3	0.8	0.5

SOURCE: RTI International analysis of 2007 Medicare claims data for outpatient therapy services (See source file HCPCS_UtilizationSummary_bySetting_all_CY2007.xls).

Table 16
CY2007 twenty most frequent outpatient PT episodes, by principal diagnosis

First episode claim ICD-9	ICD-9 description	Number of episodes	Most common 2nd diagnosis	Secondary ICD-9 description	Mean episode days	Mean episode paid	Mean claim lines	Percent of episodes
ALL		4,485,076	781.2	abnormality of gait	11.1	\$723	24.7	100.0
V57.1	Physical therapy nec	523,108	724.2	lumbago	9.8	536	16.8	11.7
724.2	Lumbago	337,474	724.4	lumbosacral neuritis nos	9.4	617	22.2	7.5
781.2	abnormality of gait	216,420	728.87	muscle weakness-general	12.6	897	27.7	4.8
719.41	joint pain-shlder	152,539	719.51	jt stiffness nec-shlder	10.8	682	24.8	3.4
719.46	joint pain-l/leg	143,686	V43.65	joint replaced knee	10.5	700	23.2	3.2
719.7	difficulty in walking	142,859	728.87	muscle weakness-general	14.0	944	31.5	3.2
723.1	cervicalgia	137,164	724.2	lumbago	9.3	589	23.4	3.1
728.87	Muscle weakness-general	86,633	781.2	abnormality of gait	14.0	904	29.9	1.9
715.16	loc prim osteoart-l/leg	84,095	719.46	joint pain-l/leg	12.9	958	32.0	1.9
724.02	spinal stenosis-lumbar	75,661	724.2	lumbago	11.7	839	27.8	1.7
724.4	lumbosacral neuritis nos	72,320	724.2	lumbago	11.5	881	33.1	1.6
726.1	rotator cuff synd nos	71,390	719.41	joint pain-shlder	12.3	862	31.3	1.6
719.45	joint pain-pelvis	70,463	724.2	lumbago	9.7	616	20.5	1.6
715.96	osteoarthros nos-l/leg	54,655	719.46	joint pain-l/leg	12.5	918	30.7	1.2
729.5	pain in limb	52,445	781.2	abnormality of gait	9.4	603	21.6	1.2
724.5	backache nos	45,830	V57.1	physical therapy nec	8.9	552	19.6	1.0
722.52	lumb/lumbosac disc degen	45,545	724.2	lumbago	9.5	624	22.4	1.0
724.3	Sciatica	44,766	724.2	lumbago	10.5	731	27.0	1.0
V43.65	joint replaced knee	44,528	719.46	joint pain-l/leg	15.9	1,138	34.2	1.0
715.09	general osteoarthritis	38,884	719.7	difficulty in walking	14.5	1,121	38.2	0.9

SOURCE: RTI International analysis of 2007 Medicare claims data for outpatient therapy services (See source file OutpatientEpisodesbyDiagnosis_PT_CY2007.xls).

Table 17
Single-setting CY2007 PT episodes by setting

Setting	Number of single-setting episodes	Most frequent ICD-9	ICD-9 description	Mean episode days	Mean episode paid	Mean claim lines
Total	4,307,875	V57.1	physical therapy nec	11	\$698	24
Hospital	1,190,611	V57.1	physical therapy nec	9	475	14
SNF	658,043	719.7	difficulty in walking	16	961	35
CORF	64,754	781.2	abnormality of gait	12	1,043	38
ORF	479,068	724.2	lumbago	11	800	28
HHA	3,191	V57.1	physical therapy nec	7	480	16
PTPP	1,469,818	724.2	lumbago	11	783	27
Physician	439,059	724.2	lumbago	7	466	19
NPP	3,331	724.2	lumbago	6	302	12

SOURCE: RTI International analysis of 2007 Medicare claims data for outpatient therapy services (See source file OutpatientEpisodesbyDiagnosis_bySetting_CY2007.xls).

Table 18
CY2007 twenty most frequent outpatient OT episodes, by principal diagnosis

First episode claim ICD-9	ICD-9 description	Number of episodes	Most common 2nd diagnosis	Secondary ICD-9 description	Mean episode days	Mean episode paid	Mean claim lines	Percent of episodes
ALL		1,061,853	V57.21	encntr occupatnal thrpy	11.5	\$783	23.4	100.0
V57.21	encntr occupatnal thrpy	63,580	728.87	muscle weakness-general	8.0	486	14.3	6.0
728.87	muscle weakness-general	51,498	781.92	abnormal posture	14.6	977	27.5	4.9
V57.1	physical therapy nec	31,277	728.87	muscle weakness-general	8.6	539	14.8	3.0
719.7	difficulty in walking	31,050	728.87	muscle weakness-general	15.3	1,042	30.4	2.9
781.2	abnormality of gait	31,041	728.87	muscle weakness-general	13.2	967	28.0	2.9
V57.89	rehabilitation proc nec	23,777	728.87	muscle weakness-general	11.6	755	19.6	2.2
781.92	abnormal posture	19,436	728.87	muscle weakness-general	11.0	663	17.9	1.8
781.3	lack of coordination	18,940	728.87	muscle weakness-general	13.9	1,053	28.3	1.8
331	alzheimer's disease	18,134	728.87	muscle weakness-general	12.5	760	21.7	1.7
354	carpal tunnel syndrome	17,839	728.87	muscle weakness-general	6.2	412	15.0	1.7
436	cva	15,895	728.87	muscle weakness-general	15.3	1,019	28.9	1.5
728.2	musc disuse atrophy nec	14,349	719.54	jt stiffness nec-hand	15.7	1,046	29.6	1.4
332	paralysis agitans	14,263	719.51	jt stiffness nec-shlder	14.0	963	26.5	1.3
428	chf nos	13,613	719.44	joint pain-hand	14.2	945	27.4	1.3
799.3	debility nos	12,749	438.2	late ef-hemplga side nos	12.5	800	22.3	1.2
719.44	joint pain-hand	12,677	728.2	musc disuse atrophy nec	7.2	462	16.5	1.2
715.09	general osteoarthritis	12,371	719.7	difficulty in walking	15.2	1,169	33.8	1.2
719.41	joint pain-shlder	12,150	719.7	difficulty in walking	11.0	719	24.0	1.1
780.79	malaise and fatigue nec	11,487	719.7	difficulty in walking	12.2	773	22.6	1.1
715.9	osteoarthros nos-unspec	11,308	457.1	other lymphedema	13.6	904	26.8	1.1

SOURCE: RTI International analysis of 2007 Medicare claims data for outpatient therapy services (See source file OutpatientEpisodesbyDiagnosis_PT_CY2007.xls).

Of the more than 1 million OT episodes in CY2007, 98 percent took place in a single type of setting. OT episodes differ greatly by setting, as seen in Table 19. Almost half of OT episodes took place in SNFs, followed by 24.9 percent in hospitals, and 10.8 percent in OTPP. The most common diagnosis overall, and in both hospitals and HHAs, was V57.21 (Care Involving Occupational Therapy). For SNFs and ORFs, the most common diagnosis was 728.87 (Muscle Weakness); and the most frequent principal diagnosis seen in OTPP and NPP settings was 719.44 (Pain in Joint Involving Hand). The primary diagnosis in each of these settings points to differences in the severity of impairment among the different patient populations, as does the variation in episode length and Medicare payments. As with PT episodes, the longest OT episodes were seen in SNF settings (15 days of treatment), followed by CORF and ORF settings (12 days). The highest payments for OT episodes were in CORFs (\$1,293), ORFs (\$977), and SNFs (\$935), with the lowest payments in the NPP (\$227) and physician (\$350) settings.

Table 19
Single-setting CY2007 OT episodes by setting

Setting	Number of single-setting episodes	Most frequent ICD-9	ICD-9 description	Mean episode days	Mean episode paid	Mean claim lines
Total	1,041,733	V57.21	enctr occupatnal thrpy	11	\$768	23
Hospital	258,877	V57.21	enctr occupatnal thrpy	7	411	11
SNF	514,869	728.87	muscle weakness-general	15	935	27
CORF	31,890	724.4	lumbosacral neuritis nos	12	1,293	51
ORF	88,194	728.87	muscle weakness-general	12	977	31
HHA	842	V57.21	enctr occupatnal thrpy	6	392	10
OTPP	112,109	719.44	joint pain-hand	8	641	19
Physician	34,575	354.00	carpal tunnel syndrome	5	350	12
NPP	377	719.44	joint pain-hand	4	227	7

SOURCE: RTI International analysis of 2007 Medicare claims data for outpatient therapy services (See source file OutpatientEpisodesbyDiagnosis_bySetting_CY2007.xls).

Episodes of SLP therapy were more concentrated in their diagnoses than either PT episodes or OT episodes. Twenty-three percent of all SLP episodes were for 787.2 (Dysphagia), and the top twenty diagnoses covered almost 60 percent of SLP episodes, as shown in Table 20. The top 200 diagnoses accounted for 89.4 percent of all SLP episodes. The most common secondary diagnosis for all SLP episodes, 787.2, accounted for the largest percentage of SLP episodes and also was the most common secondary diagnosis for 14 out of the top 20 diagnoses. With an average of 8.5 treatment days and \$597 in Medicare payments, SLP episodes were shorter and less expensive than both PT and OT episodes.

Table 20
CY2007 twenty most frequent outpatient SLP episodes, by principal diagnosis

First episode claim ICD-9	ICD-9 description	Number of episodes	Most common 2nd diagnosis	Secondary ICD-9 description	Mean episode days	Mean episode paid	Mean claim lines	Percent of episodes
ALL		506,808	787.2	Dysphagia	8.5	597	9.9	100.0
787.2	dysphagia	116,314	none		6.3	470	7.3	23.0
V57.3	speech therapy	27,646	787.2	Dysphagia	7.0	448	7.6	5.5
787.2	dysphagia nos	20,841	V57.3	speech therapy	3.8	297	4.3	4.1
331	alzheimer's disease	14,680	787.2	Dysphagia	10.1	693	11.9	2.9
436	cva	10,636	787.2	Dysphagia	13.3	926	15.9	2.1
728.87	muscle weakness-general	9,927	787.2	Dysphagia	12.6	877	15.2	2.0
V57.89	rehabilitation proc nec	9,926	438.2	late ef-hemiplga side nos	10.9	688	12.4	2.0
332	paralysis agitans	9,417	787.2	Dysphagia	10.5	768	12.9	1.9
719.7	difficulty in walking	8,321	787.2	Dysphagia	12.1	834	14.6	1.6
290	senile dementia uncomp	8,003	787.2	Dysphagia	10.7	744	12.5	1.6
781.2	abnormality of gait	7,870	787.2	Dysphagia	10.6	732	12.5	1.6
784.49	voice disturbance nec	7,472	V57.3	speech therapy	3.5	243	3.7	1.5
V57.1	physical therapy nec	7,284	V57.21	enentr occupatnal thrpy	9.0	560	9.9	1.4
787.22	dysphagia, oropharyngeal	6,370	331	alzheimer's disease	7.5	566	8.8	1.3
486	pneumonia, organism nos	6,277	787.2	Dysphagia	9.6	713	11.1	1.2
428	chf nos	5,899	787.2	Dysphagia	10.4	737	12.4	1.2
294.8	mental disor nec oth dis	5,890	787.2	Dysphagia	9.6	670	11.4	1.2
401.9	hypertension nos	5,419	787.2	Dysphagia	11.6	818	14.2	1.1
784.5	speech disturbance nec	5,399	787.2	Dysphagia	8.3	546	9.7	1.1
434.91	crbl art ocl nos w infrc	4,441	787.2	Dysphagia	9.4	669	11.1	0.9

SOURCE: RTI International analysis of 2007 Medicare claims data for outpatient therapy services (See source file OutpatientEpisodesbyDiagnosis_PT_CY2007.xls).

As with PT and OT episodes, the vast majority (96 percent) of SLP episodes were completed in a single care setting. For differences across settings in the average SLP episode, consider the results in Table 21. Similar to the results for OT episodes, SNFs were the primary setting for SLP episodes, with 58 percent of SLP episodes occurring solely in a SNF. The next largest setting for SLP episodes was hospitals (33.6 percent). Prior to July 1, 2009, speech language pathologists could not bill Medicare directly using their own provider codes as physical therapists and occupational therapists could. Instead, they had to bill through a facility or a physician. These billing requirements may explain why therapy and other private practice settings accounted for such a small proportion (3 percent) of SLP episodes, compared to the large role of these settings in PT episodes (44 percent) and OT episodes (14 percent).

SLP episodes in SNF, CORF, and ORF settings all had an average of 10 treatment days. Episodes in these settings also represented the highest average payments, with \$808 in CORFs, \$739 in ORFs, and \$735 in SNFs.

Table 21
Single-setting CY2007 SLP episodes by setting

Setting	Number of single-setting episodes	Most frequent ICD-9	ICD-9 description	Mean episode days	Mean episode paid	Mean claim lines
Total	488,635	787.2	dysphagia	8	\$571	9
Hospital	164,245	787.2	dysphagia	4	300	5
SNF	291,756	787.2	dysphagia	10	735	12
CORF	1,480	787.2	dysphagia	10	808	14
ORF	15,309	787.2	dysphagia	10	739	13
HHA	240	787.2	dysphagia	6	428	7
Physician	70	784.49	voice disturbance nec	1	95	1
NPP	488,635	784.49	voice disturbance nec	8	571	9

SOURCE: RTI International analysis of 2007 Medicare claims data for outpatient therapy services (See source file OutpatientEpisodesbyDiagnosis_bySetting_CY2007.xls).

3.9 Outpatient Therapy Utilization by CSC Classification Group

Due to the inefficiency of analyzing outpatient therapy episodes by the primary diagnosis when therapy episodes could fall into one of a few thousand different ICD-9 codes, CSC developed classification groups for each therapy type (PT, OT, and SLP) that would collect similar diagnoses into one category and allow for a more meaningful comparison. These classification groups are described by CSC (2006) in the *Outpatient Therapy Services Utilization and Edit Report*.

For physical therapy, there are 21 classification groups, which together covered 89 percent of all PT episodes; these classification groups are listed in Table 22. Episode patterns shown using 2004 outpatient therapy claims continued in 2007. The largest group contained episodes with Lumbar/Sacral/Thoracic diagnoses (18.9 percent), followed by the “Other” category (17.2 percent) and then by the Shoulder/Upper Arm group (10.7 percent). For all PT episodes, the most common secondary diagnosis was 781.2 (abnormality of gait), but there was considerable variation across the classification groups. For six of the groups, the most frequent secondary diagnosis was for joint pain—for example, the Knee/Leg primary diagnoses were most often accompanied by a 719.46 diagnoses (pain in joint involving lower leg).

On average, the longest episodes belonged to the Amputation (18.2 days), Skin-Decubitus (16.9 days), and Neurologic groups (15.4 days), while the shortest episodes were for therapy patients in the Incontinence and Ankle/Foot groups, who averaged 5.6 and 8.2 days of treatment, respectively. Not surprisingly, the number of treatment days was highly correlated with the episode payments, as the longer episodes from the Amputation and Neurologic groups had the highest payments at \$1,199 and \$1,043 and the lowest payments went to the Incontinence (\$289) and Ankle/Foot (\$513) episodes.

The 22 classification groups for occupational therapy encompassed 86 percent of all OT episodes. Table 23 lists the OT classification groups and their characteristics. Episodes categorized as “Other” were the most frequent at 19.3 percent, followed by 14.5 percent in the Neuromusculoskeletal-Other group, and 12.8 percent in the Mobility group. The most common secondary diagnosis, both for all of the classified episodes and for eight of the OT classification groups, was 728.87 (Muscle Weakness).

As with PT episodes, the longest and most expensive episodes belonged to the Amputation group. These episodes had an average of 17.1 treatment days and cost an average of \$1,129, but they were only the second smallest of the OT classification groups. The Vision episodes were the shortest, lasting an average of only 2.8 days; these were also the least expensive episodes, costing an average of \$257.

CSC classified Speech Language Pathology episodes into eight categories, which together contained 85 percent of all SLP episodes (see Table 24). The largest group was for Swallowing conditions (38.1 percent), followed by the Other category (35.2 percent) and Neurologic conditions (10.3 percent). The Communication episodes had the greatest number of treatment days, at 14.0, followed by the Neurologic episodes (11.6 days) and the Cognitive episodes (10.6 days). Hearing and Voice episodes were the shortest, with an average of 3.0 and 3.6 days respectively. These were also the least expensive episodes, with average payments of \$199 (Hearing) and \$249 (Voice). The longer episodes also tended to be the most expensive, with payments of \$869 for Communication episodes and \$815 for Neurologic episodes.

The most common secondary diagnosis for all classified speech therapy episodes was 787.2 (Dysphagia). Six out of the eight classification groups for SLP had this same modal secondary diagnosis, unlike the PT and OT classification groups, which had a larger variety of secondary diagnosis codes. Swallowing disorders made up the largest classification group for SLP, and also the most common secondary diagnosis, creating potential for using combinations of diagnosis codes to identify standard practice for SLP care (see also Table 20).

Table 22
CY2007 PT episode utilization by CSC classification group

CSC classification group-PT	Number of episodes	Percent of episodes	Most common 2 nd ICD9	Secondary ICD-9 description	Mean episode days	Median episode days	Mean episode paid	Median episode paid
Total	4,003,605	100.0	781.2	abnormality of gait	11.1	8	\$730	\$486
Amputation	4,076	0.1	781.2	abnormality of gait	18.2	12	1,199	732
Ankle/Foot	103,363	2.6	719.47	joint pain-ankle	8.2	6	513	329
Cardiac/Vascular/ Pulmonary	81,903	2.1	719.7	difficulty in walking	13.7	9	868	521
Cervical	249,145	6.2	723.1	cervicalgia	9.8	8	644	450
Cognitive/Mental	49,241	1.2	719.7	difficulty in walking	14.0	11	837	567
Edema	25,370	0.6	V57.1	physical therapy nec	8.9	5	640	326
Elbow/Forearm	12,199	0.3	719.42	joint pain-up/arm	9.2	7	586	421
Hip/Pelvis/Thigh	183,510	4.6	719.45	joint pain-pelvis	11.4	9	760	527
Incontinence	7,793	0.2	728.2	musc disuse atrophy nec	5.6	4	289	135
Knee/Leg	420,800	10.5	719.46	joint pain-l/leg	11.7	9	823	596
Lumbar/Sacral/Thoracic	758,009	18.9	724.2	lumbago	9.9	8	667	461
Metabolic	24,414	0.6	719.7	difficulty in walking	13.5	8	829	445
Mobility	414,779	10.4	728.87	muscle weakness-general	13.2	10	917	639
Multiple Sites	178,936	4.5	719.7	difficulty in walking	13.8	10	938	639
Neurologic	106,943	2.7	781.2	abnormality of gait	15.4	11	1,043	680
Neuromusculoskeletal-Other	186,627	4.7	781.2	abnormality of gait	10.6	8	682	429
Shoulder/Upper Arm	429,446	10.7	719.41	joint pain-shlder	12.0	9	795	560
Skin-Decubitus	4,881	0.1	V57.1	physical therapy nec	16.9	8	787	326
Skin-Not Decubitus	9,391	0.2	V57.1	physical therapy nec	11.2	5	568	214
Spinal Cord	2,025	0.1	907.2	late eff spinal cord inj	12.4	5	878	305
Spine	12,014	0.3	724.2	lumbago	9.4	8	603	427
Swallowing	8,875	0.2	719.7	difficulty in walking	15.1	11	913	591
Wrist/Hand	42,555	1.1	719.44	joint pain-hand	9.3	7	608	390
Other	687,310	17.2	724.2	lumbago	9.6	7	542	358

SOURCE: RTI International analysis of 2007 Medicare claims data for outpatient therapy services (See source file OutpatientTherapyEpisodes_byClassificationGroups_CY2007.xls).

Table 23
CY2007 OT episode utilization by CSC classification group

CSC classification group – OT	Number of episodes	Percent of episodes	Most common 2 nd ICD9	Secondary ICD-9 description	Mean episode days	Median episode days	Mean episode paid	Median episode paid
Total	912,354	100.0	728.87	muscle weakness-general	11.6	8	\$795	\$480
Amputation	1,132	0.1	728.87	muscle weakness-general	17.1	12	1,129	721
Ankle/Foot	1,933	0.2	719.7	difficulty in walking	11.8	8	901	566
Cardiac/Vascular/Pulmonary	58,465	6.4	728.87	muscle weakness-general	13.8	10	922	580
Cervical	12,334	1.4	723.1	cervicalgia	11.1	12	1,109	1,195
Cognitive/Mental	50,873	5.6	781.92	abnormal posture	12.6	9	778	485
Edema	10,275	1.1	V57.21	encntr occupatnal thrpy	8.7	6	708	399
Elbow/Forearm	25,145	2.8	719.43	joint pain-forearm	9.3	7	598	382
Hip/Pelvis/Thigh	17,086	1.9	719.7	difficulty in walking	13.5	11	986	688
Knee/Leg	16,686	1.8	781.2	abnormality of gait	11.7	12	1,115	1,166
Lumbar/Sacral/Thoracic	33,715	3.7	781.2	abnormality of gait	11.1	10	968	782
Metabolic	20,554	2.3	728.87	muscle weakness-general	13.9	9	908	537
Mobility	116,729	12.8	728.87	muscle weakness-general	13.4	10	924	613
Multiple Sites	21,826	2.4	728.87	muscle weakness-general	14.5	11	1,033	730
Neurologic	84,123	9.2	728.87	muscle weakness-general	14.1	10	943	580
Neuromusculoskeletal-Other	131,825	14.5	719.7	difficulty in walking	12.4	9	829	515
Shoulder/Upper Arm	47,857	5.3	719.41	joint pain-shlder	11.7	10	852	622
Skin	3,866	0.4	728.87	muscle weakness-general	13.4	8	855	466
Spinal Cord	884	0.1	907.2	late eff spinal cord inj	11.6	4	750	281
Swallowing	9,594	1.1	728.87	muscle weakness-general	13.0	9	817	486
Vision	6,720	0.7	362.51	nonexudat macular degen	2.8	1	257	139
Wrist/Hand	64,386	7.1	719.44	joint pain-hand	7.7	5	477	278
Other	176,346	19.3	V57.21	encntr occupatnal thrpy	9.1	6	576	308

SOURCE: RTI International analysis of 2007 Medicare claims data for outpatient therapy services (See source file OutpatientTherapyEpisodes_byClassificationGroups_CY2007.xls).

Table 24
CY2007 SLP episode utilization by CSC classification group

CSC classification group – SLP	Number of episodes	Percent of episodes	Most common 2 nd ICD9	Secondary ICD-9 description	Mean episode days	Median episode days	Mean episode paid	Median episode paid
Total	429,414	100.0	787.2	dysphagia	8.5	4	\$598	\$322
Cognitive	42,393	9.9	787.2	dysphagia	10.6	7	729	514
Communication	9,280	2.2	787.2	dysphagia	14.0	10	869	593
Hearing	1,445	0.3	388.43	impairm auditory discrim	3.0	1	199	103
Neurologic	44,102	10.3	787.2	dysphagia	11.6	7	815	508
Speech	6,280	1.5	787.2	dysphagia	8.2	4	535	261
Swallowing	163,604	38.1	787.2	dysphagia	6.2	2	468	183
Voice	11,039	2.6	V57.3	speech therapy	3.6	2	249	136
Other	151,271	35.2	787.2	dysphagia	9.5	5	653	386

SOURCE: RTI International analysis of 2007 Medicare claims data for outpatient therapy services (See source file OutpatientTherapyEpisodes_byClassificationGroups_CY2007.xls).

For all three therapy types, the CSC classification groups remained fairly consistent over time with regards to the relative frequencies, lengths, and payments of the episode groups. Overall, PT episodes had the same mean and median treatment days in 2007 as reported in 2004. Mean payments for PT episodes decreased from \$755 to \$730 from 2004 to 2007, while median payments increased from \$467 to \$486. However, for both OT and SLP episodes, mean and median episode days and episode payments rose slightly between 2004 and 2007. For OT, mean episode treatment days increased from 11 to 12, while mean payments increased from \$783 to \$795; for SLP, mean treatment days increased from 7 to 9, and mean payments from \$572 to \$598. Given that these dollar figures are not adjusted for inflation, the nominal increases in the average payments for OT and SLP episodes from 2004 to 2007 were in real terms decreases in average payments.

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